THE LANCET.

No. 4551. Vol. CLXXIX. LONDON, SATURDAY, NOVEMBER 19, 1910. Pp. 160.

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An Address
ON
THE PROSPECT BEFORE THE MEDICAL STUDENT OF TO-DAY.

Delivered before the Medical Students' Association of the Belfast University at the Opening of the Session on Nov. 15th, 1910,

BY JAMES ALEXANDER LINDSAY, M.D. R.U.I., F.R.C.P. LOND.,
PROFESSOR OF MEDICINE IN THE UNIVERSITY.

GENTLEMEN,—Two problems confront the medical student: How to pass his examinations and how to obtain a foothold in professional life. The former is for the moment the more pressing; the latter is likely in the long run to prove the more serious. Of medical education I do not propose to speak to-night. It is at present in a state of flux, passing through a stage of evolution which will probably have salutary results. We are beginning to realise that too much has been attempted in the past, and that some limitation and concentration of the field of study must be effected. We cannot in the course of a five years' curriculum make even of the most promising medical student a good physicist, a good chemist, a good botanist, a good zoologist, a good anatomist, a good physiologist, a good pharmacologist, a good pathologist, and a good clinician. The thing is impossible, even if Harveys, Sydenhams, Hunters, Pagets, and Listers were as common as they are, unhappily, rare. What is now becoming clear—and one wonders that there was ever any doubt upon the subject—is that the preliminary subjects of the medical curriculum must be shorn of much of their detail, must be taught with a due regard to the ultimate destiny of the student, which in 19 cases out of 20, at a moderate estimate, is to become a practitioner of medicine. Further, medical education must steadily keep in view its two indispensable objects—viz., to enable the medical student to acquire a secure grasp of the essentials of his art, both on its theoretical and its practical side, and to give him sufficient practice in scientific method—in other words, an adequate intellectual discipline and training.

ALTERNATIVES OPEN TO THE YOUNG MEDICAL GRADUATE.

But it is of your after-career that I wish to speak to-night, of the life-work for which you are now, with more or less industry and earnestness, preparing yourselves. When you receive your diplomas from the Chancellor you will feel a temporary glow of satisfaction—very natural and human and proper. But the glow will not last long. A great novelist once wrote a novel with the title "What will He do with It?" That is the question which you will be presently asking about your piece of parchment. Is it to be a magic key to unlock the doors of fame and fortune, or only a ticket to a back-seat in the gallery of an inferior play-house? Time will tell. Much depends upon circumstance and opportunity, but more depends upon the holder of the parchment. Speaking generally, five alternatives lie before the young medical graduate: 1. He may become a resident medical officer in a hospital. 2. He may become an assistant in a laboratory. 3. He may enter one of the public services. 4. He may become a ship's surgeon. 5. He may become an assistant in general practice.

I have not time to contrast these careers in any detail, but will content myself with a remark or two. If you can, if financial and other circumstances permit, select an opening which will enable you to continue your education. However great your diligence, however thorough your training, you will on graduation be conscious of many gaps in your knowledge, many limitations in your experience. Take time, if you can, for further observation and reflection—whether it be in a hospital or a laboratory, or, better still, in both. Let your knowledge settle and clarify, or, to vary the figure, let it ferment and bring forth new forms and fresh combinations. There is no time in life when the mind is more receptive than during the two or three years following graduation, when released from the burden and torment of examinations and fascinated by the expanding vistas of his art, the young medical man tastes one of the purest joys of existence.

If the services should early claim you, there will lie before you a career with many attractions, and never more desirable than to-day, but with some definite and not inconsiderable limitations, with which you should acquaint yourselves before making your choice. If you should become a ship-surgeon—and the desire of seizing the only opportunity of seeing the world which may ever arise is natural, and even laudable—I have one or two cautions to suggest to you. Take two or three voyages, and no more; and then return to *terra firma*. The experience gained on shipboard is rarely of much value; the financial gains are in most cases scanty; the habits formed are not the best preparation for future professional life. In some ships in which I have been a passenger the doctor's duties seemed to be almost confined to taking what one of them described to me as a "smell round" the steerage quarters in the morning, and arranging dances and theatricals for the young ladies in the evening. Unless the ship doctor is of quite unusual stiffness of moral fibre, he is apt to sleep too much, to smoke too much, to take too many whiskies-and-sodas, and to devote more attention to current fiction than to Osler or Taylor or Rose and Carless.

An assistancy in general practice may be either desirable in itself and lead on rapidly to a partnership and a secure position, or it may prove laborious, unprofitable, and disappointing. Some time ago I encountered on one of the cross-Channel steamers a graduate of this school who had settled in the East-end of London. He complained of the hardships of his lot. I remarked, "Well, at any rate you have got your foot on the first rung of the ladder." "Yes," he replied, "and it is a *very dirty rung*." No doubt the lower rungs of the professional ladder often leave a good deal to be desired in point of cleanliness, as well as in other regards, but perhaps a little hardship at the commencement of one's career is not an unmixed evil. Ὁ μὴ δαρεὶς ἄνθρωπος οὐ παιδεύεται, says the stern Greek proverb—if one may still quote Greek in these degenerate days—which may be roughly translated, "We are all the better for an occasional application of the rod." Where things are too easy and nature too kind, where the savage lies in the sun and lets the bread-fruit drop into his mouth, nothing much is achieved in the domain of character. A visitor to Barbados once saw a negro enjoying his ease and thus addressed him: "How do you manage to pass the time, Sambo?" "I just lie in the sun, massa, and let the time pass me," was the reply. That is not a good model for the medical profession, which its worst enemies have never called an easy life. The rough and the smooth come in most lives, and it is well when the rough comes early, before the heart is too faint and the brain too tired to bear it.

The young medical graduate may at the outset of his career be undecided what department of practice will ultimately claim his attention—whether general practice or one of the special branches—and hence, he may be in doubt how to shape his course. Here, I think I may suggest two guiding principles. If there be a decided taste for, and early selection of, some special branch—e.g., public health or ophthalmic surgery—it is probably wise that the young graduate should soon bend his energies to his future life-work. In the absence of such special taste or early choice the best course is for him to cultivate himself as widely as possible, to enlarge the field of his experience in many directions, to make his professional armour as complete as he can. Specialism is the great feature of modern practice. It is the necessary corollary of advancing knowledge and the growing complexity of our art, and it is idle to impugn it. But we all know the dangers of a too narrow specialism. I have heard of a throat specialist, consulted for a pharyngitis, who gave some excellent advice as to the management of the throat, but overlooked the fact that the patient was in the early stage of typhoid fever. Cultivate yourselves as variously as you can, and do not be in too great a hurry to terminate your period of preparation, your medical novitiate. "Tout vient à point à qui sait attendre," says the wise French proverb, which we very inaccurately translate, "Everything comes to him who waits," thus turning one of the truest of proverbs into one of the most false. Everything does *not* come to him who waits—far from it. But everything, or nearly everything, does come to him who knows *how* to wait, to him who spends the waiting time well.

FINANCIAL REWARDS.

Let us now look at the career which awaits you in the future—the career of medical practice—in some of its

general aspects. Is medicine, as some assert, an overcrowded, arduous, and ill-paid profession, with little certain leisure, heavy responsibilities, and a relatively poor prospect of attaining length of days? Or is this view unduly pessimistic? And first, as to the question of overcrowding. It can hardly be denied that during the last three or four decades there has been in most civilised countries an undue rush to medicine, that the supply has exceeded the demand. This rush has been even more marked in France, Germany, Italy, and America than amongst ourselves, and it has been contemporaneous with a notable dearth of candidates for the Church—a very significant circumstance. It is highly probable that if some of those whom I address had lived a generation earlier, instead of handling the scalpel, or the stethoscope, and attending to the sick, you would have been engaged in expounding theology, baptising infants, and joining happy couples in holy matrimony. Whether this involves your loss or gain is a question which I shall not attempt to determine. But I do not think that overcrowding of the medical profession is an urgent question in Ireland. Belfast, with a population of about 380,000, has 247 medical men on its register, of whom about 230 are in practice, which works out at about one medical man to 1650 people, and this is a proportion which is supposed to afford a reasonable prospect of a livelihood to the medical practitioner. Cork, with a population of 76,000, has 93 medical men on its register; Limerick, with a population of 38,000, has 35 medical men; and Londonderry, with a population of a little over 40,000, has 34 medical men. If we allow for those recently qualified and not yet in practice, for those engaged in special branches, such as lunacy or public health, and for retired veterans, these figures, though ample, are not excessive. The case of Dublin, with two Universities and two other qualifying bodies, is exceptional. In England the ratio varies greatly, as might be expected. For example, Sheffield has a ratio almost the same as that of Belfast, while Brighton has no less than one medical man to 600 people—a very high rate, but accounted for by more or less obvious reasons.

But granting that, speaking generally, the medical profession is somewhat overcrowded, are not other professions in a like case? The congestion at the Bar has long been notorious. Of those called to the Bar it might be truthfully said, "Many are called but few are chosen." A well-known judge said recently to a friend of mine that there were 10,000 barristers in England, and only work for 500. I cannot guarantee the accuracy of these figures, but my authority is good. Or take the scholastic profession. In the *Times* of Oct. 7th, 1910, there were some interesting figures regarding the overcrowding in this profession. Of 4836 students who left college in July, 1909, prepared for scholastic work, it was found that in the following October 38 per cent. had not secured permanent work as certificated teachers, while 31 per cent. had secured no work at all. Now, how many of the graduates of this school are unplaced three months after graduation? Comparatively few, I think, except those who are lying out, waiting for some appointment. The large majority find billets of some kind in a few weeks or months. I grant that the billets are not always lined with swan's down, that the work is often hard, and the pay rarely munificent. But billets of some kind are found with surprising rapidity. The young recruits of our profession, whatever be their hardships, do not at any rate join the ranks of the unemployed. They do not frequent soup-kitchens, or go on deputations to the Home Secretary, or cry out for a "living wage."

Is medicine an arduous, a hard profession? Certainly it is. That is one of its glories. You will have "to endure hardness," many of you at least, and it will be good for you. If you are not prepared to have, occasionally at least, a rough time of it, to rise often at the unwelcome tinkle of the night-bell, to leave the dinner-table sometimes before you have finished your second cigarette, to resign the joys of the links on occasion because the telephone summons you elsewhere, to encounter fatigue cheerfully and to face danger with a light heart, turn back before it is too late, for you have mistaken your vocation.

Is medicine an ill-paid profession? That is a question difficult to answer. No doubt we all wish that it were better paid. "I should like to possess riches," said the poet Shelley, "because I think I could use them well." That is what we all think. Now I do not believe that finance is a strong point of our profession. No profession does so much for nothing or is so often defrauded of its just dues. Our legal brethren understand these things better. When you compare a bill of law costs—magnificent in amplitude, rich in detail—with the modest reminder which the practitioner of medicine sends to his patients at Christmas-time, you will recognise that law has at least one point of superiority over medicine. Further, there are no great financial prizes in our profession. If any of you have the ambition to become millionaires you have not started on the right path. You had better give up medicine and turn your attention to rubber, or petroleum, or whisky. That some branches of our profession are systematically sweated by the public can hardly be denied; witness the Irish Poor-law service, where in some cases I am credibly informed that the salary barely covers the doctor's car-hire. Those who expect good service on those terms are expecting too much from human nature. Again, medicine has no comfortable sinecures, no snug posts with light work and good pay, where virtue may enjoy its ease and suffer no hardship.

But there is something to be said on the other side. The financial rewards of medicine, if seldom brilliant, are often substantial, and they are fairly secure. If the standard of remuneration is in many cases too low, the fault is largely with ourselves. With ourselves, too, might rest the remedy, but a too careful regard for the amount and the security of our financial rewards is, upon the whole, opposed to the traditions of the medical profession. Ruskin says that the doctor likes his fee well enough, but that he would rather lose his fee and save his patient than gain his fee and lose his patient. I hope this is true, and that it always will be true.

Opportunities to Extend Knowledge.

Let us turn to some wider considerations. Medicine offers you, gentlemen, a work which is in touch with the reality of things, which is in contact with nature at first hand. Law is man-made. Theology is trammelled by tradition. Medicine looks, or should look, at the facts of nature as they are. She can afford to lift "the Veil of Isis"—that "thick web of fiction which man has woven round nature," as Huxley says. You will be first and essentially practitioners of an art—the art of healing; but it may be the high privilege of some of you to extend the frontiers of knowledge, to sound a little more deeply the unplumbed sea of mystery, by which we are surrounded. Research is an essential function of modern medicine, and, rightly understood, it is worthy of every encouragement. The difficulty is to find your true researcher, the man who will not only *seek* but *find*. When you have got him, he is a very important person indeed, but there are a good many imitation articles in the market. You may be destined to extend knowledge, and as Bacon says finely, "We see that voluptuous men turn friars and ambitious princes turn melancholy, but *of knowledge there is no satiety*." The physician should also be a naturalist, and while man is his special field of observation, he must include in his purview everything which has a direct relation to man on his physical side, and that takes him far. Think of the revelation of the methods of nature, of her mysterious workings, which has come with the development of the comparatively new science of bacteriology. Our "invisible friends and foes" have become potent realities to us, and we are gradually learning how to avail ourselves of their assistance or how to guard ourselves against their attack. Think of the light thrown on the problems of mind by the stupendous advance in our knowledge of the anatomy and physiology of the brain. A great metaphysician of a bygone generation—the greatest of his time—once wrote a paper on the thesis that a knowledge of the structure of the brain could throw no light on the phenomena of mind. We smile now at such a contention. The tables are completely turned, and the metaphysician and the psychologist look to the physiologist and the physician for light and leading. It is hardly presumptuous to say that any true theory of human nature must come from the side of medicine. Two of the most eminent of modern philosophers—Wundt and William James—owe much to having laid the foundations of their speculations in the study of our art. Practise your art, then—this first and chiefly—but advance knowledge if you can. It is probable that important facts, unrecognised, lie around us, if we had eyes to see. I once heard a great preacher drawing a vivid picture of the miseries of human life, and he described a man dying on a mountain

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Medicine and Social Evolution.

Medicine, again, may be fairly described as a profession which is growing in public esteem, and more and more approving itself to an age of which the ideals are largely utilitarian. The great discoveries of Pasteur and Lister, of Koch and Behring have profoundly impressed the imagination of the world. It has been recognised that in some important fields the veil was truly being removed from nature. Turning to another field, the spectacle of a regenerated Cuba, a Panama Canal with a moderate death-rate, a West Africa partially rescued from the scourge of malaria—all the fruit of applied medical science—has seemed to herald the dawn of a new era for humanity, when man might hope for a final victory over infective disease. And the success—still partial, but none the less ultimately assured—of the Anti-tuberculosis Movement amongst ourselves tells the same tale. In many fields medicine is steadily extending its scope. Only the other day England, following in sadly-belated fashion the example of continental nations, admitted the doctor to inspect her schools and scholars. He is not yet admitted to a similar duty and privilege in Ireland, but this cannot be long delayed. When that day comes, as come soon it must, and the doctor enters the primary schools of Ireland as an official with authority, he will find a fair field for his energies, and if his language should be a little warm, let us hope that the Recording Angel will be lenient, due account being taken of the nature of the provocation. Our profession is still much under-represented in Parliament, and we have still to wait for a Ministry of Public Health. If we had a solid phalanx of medical men in the House of Commons who would cry out for attention to the health of the people with the same energy as others cry out for *Dreadnoughts* and Territorials, it would be better for the nation. We spend £70,000,000 a year on defence—on men, ships, guns, and powder—and how much on an organised attempt to stem the tide of disease and improve the national physique? A mere song by comparison. The machinery for destroying life is much more elaborate and much more costly than that directed to its preservation and improvement. Why? The only answer which I can suggest is that we are still barbarians, with a thin veneer of civilisation; still heathens, with just a slight tincture of Christianity. Man is a fighting animal—especially the Irish man—and the fighting instinct has its uses and is not without its noble side. Yet it is probably destined ultimately to disappear, but not in our day.

Medicine is probably destined to take an ever-increasing part in the work of social evolution. The great task which lies before the twentieth century is the organisation of society upon a scientific basis. We have got to rid ourselves of the dead hand of a past which we have outgrown. We have got to open our eyes to the light which is now streaming in upon us from so many quarters, to avail ourselves of every fresh insight gained into the powers of nature, to make opinion and practice really accordant with fact and experience. In this great work medicine must take a prominent part. Problems such as those of infant mortality, the increase of insanity, the falling birth-rate, the hygiene of trades and occupations, physical education and eugenics, and many kindred questions lying at the very root of social efficiency, cannot be settled, cannot, let us rather say, even begin to be understood, without the intervention of medical science. The medical man is, no doubt, primarily a healer—that is his indispensable function; but he must also be an educator, a pioneer of progress, a social reformer, a leader of opinion. He possesses knowledge which is useful, not only in the sick room and the hospital ward, but in the school, the factory, the farm, the senate. He must spread the light. "There is no darkness but ignorance," says our great poet, and Schopenhauer speaks shrewdly when he says, "All ignorance is dangerous and most errors must be dearly paid. And good luck must he have that carries unchastised an error in his head unto his death."

The Qualities of the Medical Practitioner.

Once more, medicine offers you a career which includes a certain ethical training and discipline. What do these include, and are they altogether on the right side? Well, I do not claim for our profession that it produces any exceptional proportion of saints or heroes. It does produce some—Dr. McClure does not stand alone; but let that pass. I should rather claim that as medicine sees things as they are—man and nature unveiled—as the medical man is in touch, close touch, with realities, he should be first and foremost a man of common sense, level-headed and discerning, sympathetic but not sentimental, helpful but self-respecting, and he should be specially on his guard against vagaries of thought, opinion, and practice. The history of our art, which is far too little studied, affords many warnings against the follies of medical practice, the fleeting fancies of the hour. The popular folly of the hour just now is that soured milk is a panacea for most of the ills that flesh is heir to, and that if we can only introduce a sufficient number of the *Bacillus bulgaricus* into our large intestine all will be well. And leaders of our profession and eminent scientific luminaries lend their sanction to rubbish of this kind. We shall see how long this mad will endure. Probably it will have a brief day, but when it has "mingled with the infinite azure of the past" there will still remain the fact that buttermilk *does* possess some useful nutrient properties.

But it is often hinted that our work tends to make us callous to suffering. Now, by an absolutely invariable law of human nature the frequent repetition of any impression weakens its intensity. Even the twentieth cigarette is not quite so sweet as the first or the second. The spectacle of disease and death is our daily portion. We come to regard them with comparative calmness. It could not be otherwise, and to quarrel with this fact is merely to tilt against human nature. Yet I think we may claim without presumption that the medical man's sympathy, so long as there is anything to be done, is rarely wanting. His instinct is to act rather than to talk, and perhaps he is not always sufficiently mindful of the fact that there are occasions in life when kind words mean a great deal. But medicine is essentially a sympathetic profession. The Bar can never shake off the taint of contentiousness. The priest is always to some extent a man apart. But the doctor is a man amongst men, whose business it is to help them, who stands by them in the hour of their extremity, who places whatever knowledge or skill he may possess at their disposal, and who is often sorry that he cannot do more. "We should neither weep nor laugh at human beings," says Spinoza, "but endeavour to comprehend them." I think our profession fulfils that ideal at least as well as any other profession. A very eminent living physician once said to me

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THE QUALITIES OF THE MEDICAL PRACTITIONER.

Once more, medicine offers you a career which includes a certain ethical training and discipline. What do these include, and are they altogether on the right side? Well, I do not claim for our profession that it produces any exceptional proportion of saints or heroes. It does produce some—Dr. McClure does not stand alone; but let that pass. I should rather claim that as medicine sees things as they are—man and nature unveiled—as the medical man is in touch, close touch, with realities, he should be first and foremost a man of common sense, level-headed and discerning, sympathetic but not sentimental, helpful but self-respecting, and he should be specially on his guard against vagaries of thought, opinion, and practice. The history of our art, which is far too little studied, affords many warnings against the follies of medical practice, the fleeting fancies of the hour. The popular folly of the hour just now is that soured milk is a panacea for most of the ills that flesh is heir to, and that if we can only introduce a sufficient number of the *Bacillus bulgaricus* into our large intestine all will be well. And leaders of our profession and eminent scientific luminaries lend their sanction to rubbish of this kind. We shall see how long this rad will endure. Probably it will have a brief day, but when it has "mingled with the infinite azure of the past" there will still remain the fact that buttermilk *does* possess some useful nutrient properties.

But it is often hinted that our work tends to make us callous to suffering. Now, by an absolutely invariable law of human nature the frequent repetition of any impression weakens its intensity. Even the twentieth cigarette is not quite so sweet as the first or the second. The spectacle of disease and death is our daily portion. We come to regard them with comparative calmness. It could not be otherwise, and to quarrel with this fact is merely to tilt against human nature. Yet I think we may claim without presumption that the medical man's sympathy, so long as there is anything to be done, is rarely wanting. His instinct is to act rather than to talk, and perhaps he is not always sufficiently mindful of the fact that there are occasions in life when kind words mean a great deal. But medicine is essentially a sympathetic profession. The Bar can never shake off the taint of contentiousness. The priest is always to some extent a man apart. But the doctor is a man amongst men, whose business it is to help them, who stands by them in the hour of their extremity, who places whatever knowledge or skill he may possess at their disposal, and who is often sorry that he cannot do more. "We should neither weep nor laugh at human beings," says Spinoza, "but endeavour to comprehend them." I think our profession fulfils that ideal at least as well as any other profession. A very eminent living physician once said to me

that the most important quality for a practitioner of medicine was—what do you think?—skill? wisdom? courage? resource?—No; but *hopefulness*. Christian Science has played, and is playing, such vagaries before high heaven as might well make the angels weep, but it has done us one service—it has emphasised the importance of the mental factor in the treatment of disease, of the weight to be attached to the expectation of cure and the determination to get well. Hope is, indeed, the sheet-anchor of poor humanity in the dark hour of sickness and suffering, as in other dark hours. There are times in most lives when if it were not for hope—hope that the clouds will some day break, that the dark night will be succeeded by some brightness of dawn—where should we be? Therefore when you enter the sick-room beware of the clouded brow or the mournful voice. You must for the moment at least dismiss your own troubles if you wish to relieve the troubles of others. You must have "a heart at leisure from itself" if you would cheer other sad hearts. Hence, as a profession, doctors are cheerful men by a sort of necessity of the case, an inherited professional habit of mind, for which, perhaps, we deserve little credit. The "weeping philosopher" may have his uses in the world, but let him not attempt to practise physic.

STATE MEDICAL SERVICE.

One last topic I suggest to you, but it is too vast to be dealt with adequately at the close of an address. A proposal has recently been put forward for the nationalisation of the medical profession—i.e., the reorganisation of the medical profession as a department of the Civil Service. If this were effected, doctors would become servants of the State, they would be subject to the supervision, direction, and control of the State, and private practice would cease. Medical men would be distributed according to the circumstances of the case and the needs of the locality; overlapping and competition would come to an end, work would be more evenly distributed, remuneration would be more equally awarded, sweating of the profession would be abolished. It is an attractive programme, but the practical difficulties in the way of its realisation are enormous. I must just hint at one. The value of a medical opinion varies from something less than zero to any figure you like to name. How will the State adjust the corresponding fee? Yet the suggestion is one worth thinking over. It must be remembered that there is at present a strong disposition to extend the area of State action, and that this tendency is sure to grow. It is impossible to say with any approach to certainty what, in the future, the State may or may not do, what functions it may or may not undertake to discharge. An organised State medical service is not an impossibility. Amongst its advantages would be the adoption of the One-portal Method of entry into the profession—on the lines of the Staats Examen of Germany—a reform towards which medical opinion in this country is steadily tending.

In conclusion, let us not lend too attentive an ear to those Cassandras who would assure you that in selecting the medical profession you are choosing a hard and thankless lot. You will not have an easy life, but it will be an interesting one. You will make many friends, and you will meet with some gratitude—perhaps as much as you will deserve. The patient whom you cure, and the patient who gets well when you happen to be in attendance—the two things are not quite synonymous—will probably let the world know about it. Few of you will achieve wealth, but all of you will, I hope, have bread-and-butter, and occasionally cheese. You will be members of a great brotherhood, in which there is much fraternal feeling and not more jealousy than might fairly be expected under the circumstances. Your work will tend to keep you in touch with the progress of science and all the wonders which are yet to be. Some of you may even live to pay your daily rounds by aeroplane or dirigible, without too much risk to your neck. You will probably witness an ever-increasing victory of man over disease, the gradual lightening of the dark shadows cast by malaria and plague, tuberculosis, and typhoid fever. You may watch the gradual evolution of a true sanitary conscience in the nation, a conscience which will banish those plague spots in our civilisation—the slum, the fever-den, the sweater's workshop, the insanitary schoolhouse, the foul dairy. You may, if you use well your opportunities, "see life steadily and see it whole." Few men have a better "conning tower" than ourselves. And then, when you are nearing what Kipling calls "the end of the passage," you will probably feel that your work has not been wholly in vain, that the world is a little, even if only a very little, the better and the sweeter because you have lived in it

HEREDITARY CRANIO-CLEIDO-DYSOSTOSIS,

WITH A REVIEW OF ALL THE PUBLISHED CASES OF THIS DISEASE: THEORIES OF THE DEVELOPMENT OF THE CLAVICLE SUGGESTED BY THIS CONDITION.

BY DUNCAN C. L. FITZWILLIAMS, CH.M. EDIN., F.R.C.S. ENG. & EDIN.,

SURGEON IN CHARGE OF OUT-PATIENTS, ST. MARY'S HOSPITAL.

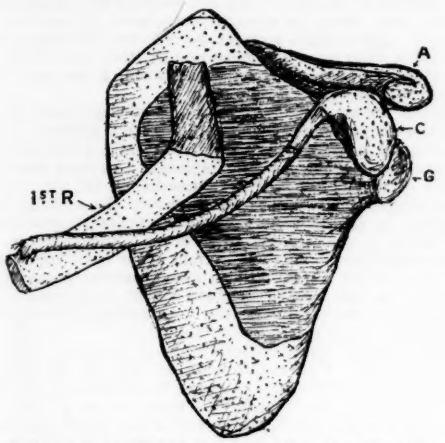
CONGENITAL defects of the clavicle occur and are usually associated with imperfect ossification of the cranial bones. This disease is undoubtedly rare, but its effects are so striking as to lead observers to place on record any instances which occur. So long ago as 1766 Morand noticed a typical example, but it was not till 1903 that Marie and Sainton accurately described the main features of this condition under the name of hereditary cranio-cleido-dysostosis. In 1905 Villaret and Francoz tabulated 45 cases, and reported an instance in which a mother and her three children were all affected. Two examples have come under my own observation, and I have been able to collect 58 others. A tabulated analysis of these 60 cases is appended to this paper. The records were often imperfect, but in all the identity of the condition is, I think, indisputable.

The first of my cases was a girl, aged 8 years, whose father, mother, brothers, and sisters were all free from deformity. Her right clavicle was in two portions, the division occurring at the junction of the middle and outer thirds. The sternal end was tilted upwards at its outer extremity, so as to over-ride the inner end of the acromial portion and form such a prominence in the neck as to induce the parents to seek treatment for the child. The acromial portion, owing to the weight of the limb, drooped and swung forwards and inwards, as in the ordinary fracture of the clavicle; its inner end lay under the sternal fragment and pointed upwards, backwards, and inwards, so that the right shoulder was lower, further forwards, and nearer the middle line than the left. An asymmetrical appearance was thus given to the upper part of the trunk when seen from in front, while posteriorly the vertebral border of the scapula on the affected side was more prominent than that of its fellow. The two portions of the clavicle were united by a ligament which became more evident on attempting to separate them. The point of the right shoulder could be forcibly adducted towards the sternum through a considerable distance, the point of disunion acting as the hinge. The prominence in the neck already referred to was not altogether due to the over-riding and tilting of the one fragment by the other, but was also accounted for by the fact that their adjacent ends were thickened in a very characteristic manner, contrasting markedly with the thin peg-shaped extremities seen in ununited fractures. There were no cranial, facial, dental, or other structural defects discovered. The arm movements were unimpaired. There was no history of trauma in infancy, nor had any pain or inconvenience ever been associated with the deformity. The lump had first been noticed when about 5 or 6 years, and was thought to have gradually become more prominent.

I have no hesitation in asserting that the condition in this child was a developmental defect. As regards the degree of deformity and position of the fragments, this case was typical of a class in which only one clavicle is affected. The position of the fragments may vary, so that the acromial overlies the sternal portion (Hultkrantz), or end-to-end fixation may be found (Carpenter).

The second case was that of a male child, aged three months, who died from marasmus. It had the large skull and shrunken-looking face so frequently mentioned in the reports of these cases. The ossification of the skull cap was extremely defective, the bones thin and translucent, the sutures widely open, and the fontanelles abnormally large, so that fully one-half of the vault was still in a membranous condition. In the shoulder girdle the scapulæ were well formed, but the clavicle on each side was represented by a

thin but distinct bar composed mostly of bone, but partly of cartilage. This bar, passing from the cartilage of the first rib, if not from the edge of the sternum, to the posterior end of the coracoid process, was attached to these points by short ligaments, and represented, I believe, the inner two-thirds of the clavicle. Unfortunately, no record was kept of the musculature of the two sides. Dr. F. J. Poynton and Dr. Reginald Miller showed this case to the Royal Society of Medicine, and it appears in the analysis as Case 51. My sincere thanks are due to these two gentlemen for being allowed to examine the specimens removed post mortem.



Sketch of the shoulder-girdle removed from Case 51. Shows first rib; A, acromion process; C, coracoid process; and G, glenoid cavity.

Other Features.

The features pathognomonic of hereditary cranio-cleido-dysostosis, other than those which are found in the clavicle, occur in the bones of the head and face. Particularly noteworthy are the shape and size of the skull, to which attention is drawn in 40 cases. In only 3 instances is the head stated to be normal; of the remaining 17 cases the notes are in many instances very incomplete on this point, and we may conclude that these characters either passed unnoticed or that no particular attention was paid to anything but the curious condition of the shoulder girdle.

The skull changes consist both in deficient and also in defective ossification of the bones forming the cranial vault. During infancy in this disease a large part of the vertex remains in its membranous condition. The anterior and posterior fontanelles are disproportionately large, or may, by the wide separation of the parietals, form one extensive fontanelle. This membranous area is further increased in size by an open metopic suture in front, and the absence of the interparietal portion of the occipital bone behind. This last-named piece of bone is developed in membrane, and is therefore affected in common with the other membrane bones of the vault; but as the remainder of the occipital bone is developed in cartilage it consequently escapes abnormality. As age advances this membranous area diminishes in size until the metopic suture, sagittal suture, and posterior fontanelle are obliterated by bone. This is usually complete by the twentieth year. Concurrently with this the anterior fontanelle shrinks until, a few years after the rest of the space, it is completely closed. Great delay in the closure of the anterior fontanelle is sometimes met, and in some cases it probably remains open throughout life; in Case 7 this fontanelle was "as large as the palm of the hand" at the age of 47, and in Case 24 was still unossified at the age of 56.

The delay in the transformation into bone of the membranous parts of the cranium is accompanied by excessive bone formation in those areas to which ossification has already extended, as if nature tried to compensate the unprotected membranous areas by increased bone formation in their immediate neighbourhood. As a result of this six prominent bosses develop on the vertex, arranged in three pairs, one behind the other, corresponding to the frontal, parietal, and occipital bones. The three bosses on the one side are separated from those on the opposite side by a broad median furrow, which is deepest in front and gradually becomes shallower as it extends backwards, while each symmetrical pair is separated from the other by a transverse furrow, one of which corresponds to the coronary and one to the lambdoidal suture; of these the anterior is the better marked, but is broader, shallower, and less evident than the median furrow. The formation of these bosses gives to the anterior part of the head an appearance resembling the hot-cross bun head occasionally seen in congenital syphilis, and this has caused observers occasionally to identify the condition with rickets, but in well-marked cases the frontal bosses are more prominent and the median furrow deeper than those found in syphilis and rickets.

A thickening analogous to these bosses is sometimes seen in the clavicle on either side of the interval between the two parts, as was strikingly demonstrated in my case. With this distortion of the normal outline of the head a corresponding variation takes place in the diameters of the skull. Where actual measurements are taken, the circumference, length, and breadth are all found to be enlarged, but not proportionately, the increase in breadth being greater than that in length, so that the skull acquires brachycephalic characteristics. Scheuthauer found on post-mortem examination of Case 24 a large number of Wormian bones situated in the sagittal and lambdoidal sutures, and that the spheno-occipital junction was markedly angular, with the convexity upwards.

In every case where the skull changes are present in a well-marked degree, they are accompanied by profound alteration in the skeleton of the face, the bones of which are said to be atrophied or undeveloped, the face itself frequently being described as small, and small it is when compared with the normal. The disparity in size between the small face and large head is frequently well depicted in illustrations which accompany many of the published records of this condition. Besides their diminutive appearance, the features are altered in a very characteristic manner. The supra-orbital ridge, partaking in the increased girth of the cranium, prominently overhang the orbits, while the bones bounding the orbits below, in common with the majority of bones of the face, are small and ill-developed and appear flattened or sunken in comparison. The roof of the orbit is sometimes depressed, thus causing some degree of exophthalmos. The general aspect of the orbit resembles that of a patient with a mild degree of hydrocephaly. The nasal bones are short, ill-formed, and not infrequently deviated to one or other side. Peculiarities, such as narrowness of the upper jaws or high vaulting of the palate, are mentioned 18 times, while irregular dentition is noted on 19 occasions. The reason for both these conditions is the same—namely, stunted growth of the superior maxilla, which gives rise to a V-like alveolar margin, thus greatly restricting the space available for the eruption of the teeth. Also with badly developed superior maxillæ and with overcrowding of the teeth, irregularity in the line of eruption is bound to occur. An exactly similar condition may be reproduced in children who suffer from naso-pharyngeal obstruction, where the disuse of the nasal air-passages entails lack of development of the maxilla, narrowing of the palate, and overcrowding of the teeth.

Various suggestions have been offered to explain these facial peculiarities—fœtal rickets occurring at the second or third month, and arrest of growth of the zygomatic arch; but most authors appear to regard lack of development of the facial and cranial bones as due to the same cause. Of the first two views nothing need be said. The last is easily shown to be fallacious, for not only are the bones of the face preformed in cartilage, whereas those of the vault are not thus outlined but are developed solely in membrane, but also a similar appearance is reproduced without the action of this disease by any condition in which there is delay in the closure of the vault of the skull, such as in the common forms of hydrocephaly. Because the increased intracranial bulk normally causes the cartilaginous base to expand and develop, but where the vertex remains unclosed, increased volume is readily accommodated by a separation of the bones of the vault, which "open like the petals of a flower," while the basal portions undergo a bending at the lateral margins, causing an angle to appear at the central part in the neighbourhood of the spheno-occipital junction, as was

noted in Scheuthauer's case. Want of expansion at the base of the skull must necessarily entail a lessened growth in the bones, which are firmly attached to this part of the cranium, hence the changes found in the nasal bones and superior maxillæ. In the lower jaw, however, which is not thus firmly attached, the stunting influence is less potent, and as we should expect, the face is frequently mentioned as being prognathous or the lower jaw is reported as underhung (Cases 45 and 54). Therefore the lack of development of the facial bones is secondary to the maldevelopment of the cartilaginous base, and has not a primary pathological significance.

I looked through the numerous skulls in the Museum of the Royal College of Surgeons of England in the hope of finding a skull with these characteristics among them, but was quite unsuccessful, an indication of the rarity of the condition.

The hereditary nature of this affection, insisted upon by Gegenbaur as long ago as 1864, although denied later by Gross, was fully recognised by Marie and Sainton when naming the disease by the title under which it is now known, and is conclusively proved by a consideration of this series—eight families producing no less than 31 affected individuals. In Case 17, not included in the above number, the father and brothers are said to be similarly affected, but no details are given. There can be little doubt that if the immediate ancestors and descendants of many other cases had been examined, this hereditary tendency would be even more clearly demonstrated. Transmission evidently is possible from parents of either sex, for 5 mothers and 3 fathers transmitted it directly to 23 children. I can find no evidence from the records of transmission to the third generation, but one must bear in mind that, among hospital patients, even with easily recognised and popularly familiar conditions, information as to the grandparents is rarely obtained.

The two sexes seem to be affected with equal frequency, 28 instances occurring in females and 26 in males; in 6 no mention was made of the sex of the individual.

Muscles.

The state of development of the muscles acting on the shoulder girdle has been noted by many writers, their superficial situation enabling accurate observation to be made; in a few exceptional cases opportunities have arisen for post-mortem examination. In my first case the muscles, as far as I could tell, presented no abnormality. I was not present when the specimen from the second case was removed, and unfortunately no note was made of the development and relationship of the various muscles.

The sterno-cleido-mastoid muscle seems to vary very much with the state of development of the sternal portion of the clavicle. When that portion of the bone is well represented the muscle is normal; but where there is only a small rudiment of bone present, the clavicular head of the muscle is reduced to a thin band partly attached to the bone and partly to the ligament prolonging that outwards. The sternal head of the muscle is always much less affected than the clavicular head (Kappler).

The clavicular portion of the trapezius, having no outer end of the clavicle for its insertion, is very frequently absent (Case 26), the muscle only coming as far forward as the tip of the acromion (Gegenbaur). It may, however, be present and find attachment to the coracoid and the ligament extending to that process of bone from the sternal portion of the clavicle (Scheuthauer).

The fibres of the deltoid muscle appear to be unaffected, but dissection shows that the anterior fibres are frequently lacking or only represented by a few fasciculi which take origin either from the inner border of the acromion process or from the fibrous band already referred to. In Shermann's first case the deltoid and infraspinatus muscles were very feebly developed. The posterior fasciculi of the muscles are well developed; and Villaret and Francoz noted enlargement of the tubercle on the spine of the scapula, and attributed its growth to the abnormal and compensatory activity of these fibres.

The clavicular head of the pectoralis major is usually present, but is feebly developed when the sternal portion of the clavicle is small; it was completely absent in Case 26. The chondro-sternal portion remains normal. There is some doubt as to the presence of the subclavius muscle; Gegenbaur, Kappler, Villaret and Francoz all question its existence, even where the two portions of the clavicle are well developed, and they consider that the movements of the bone are due to the action of the other muscles inserted into it. Scheuthauer, however, in the course of his dissections found the muscle hypertrophied and inserted into the under surface of the ligamentous representation of the clavicle. The deeper muscles seem unaffected.

In spite of the abnormal condition of the muscles, ordinary movements are uninterfered with. Many writers mention that the patients themselves were totally unaware of anything unusual, and Carpenter's cases had reached adult life, performing strenuous work, without noticing any disability. An illustration is published of a boy balancing himself on his hands with his feet in the air, showing that the shoulder girdle may retain its strength even when it has lost its rigidity. Other cases, however, seem to feel the effect of the condition, their arms becoming rapidly tired, and fatigue in the shoulders, after carrying her baby about in her arms, was complained of by one woman (Case 7).

But if the normal movements are uninterfered with, movements which are quite foreign to the normal shoulder girdle are allowed, especially in cases where there is a wide interval between the ends of the two fragments. In these cases the range of movements is truly extraordinary, and seems to be only limited by the distance to which the muscles will stretch. In the published illustrations, the favourite attitude in which to depict these cases is with the shoulders in apposition in the middle line in front of the chest just below the chin, giving a most bizarre and unnatural appearance. If when in this position they are viewed from behind, the upper part of the trunk resembles in appearance the narrow-shouldered outline seen in an animal such as a dog or a horse, in which there is no clavicle to prop out and support the shoulders. With the arms at the side in the ordinary position of rest the shoulder assumes the position usually seen in fractures of the clavicle—the point of the shoulder is lowered, swung forward, and is nearer the middle line than is normal. The scapula not being propped out, the anterior portion comes to lie in apposition with the chest wall, a winged appearance being produced by the prominence of the vertebral border. The humerus is slightly abducted and directed away from the side. This deformity is the more noticeable when the condition is unilateral and comparison can be made with the sound side. By pressure on the upper costal arches the position of the scapula just described may have some influence in producing the depression, so often noted, in the middle and lower parts of the sternum.

Clavicle.

Hereditary cranio-cleido-dysostosis is a condition which affects those bones which develop wholly or partly in membrane. For this reason it throws some light on the developmental origin of bones about whose morphology there still exists some doubt. It is interesting, therefore, to see what is the result of the dissection made by this disease upon the clavicle. The following table shows the incidence of the condition on each side throughout the 60 cases:—

	Left.	Right.
Both clavicles absent, 6 cases	—	—
One clavicle alone absent	2	0
One bone alone defective	1	3
Sternal end alone represented	23	27
Acromial ,, ,,	1	2
Both portions present, but ununited	14	17
Both portions joined, but showing by angling, notching, or arching, formation from two parts	5	2
Ligament prolonging inner end outwards	13	11

From this we see that throughout the series both the clavicles are totally absent on six occasions. Twice the bone is completely absent from the left side, the right bone being more or less represented; but the right bone is invariably present in some degree if there is any representation of the left.

The table also shows that when the bone is defective but not altogether wanting, the commonest abnormality is the absence of the outer or acromial portion, with the presence in a varying degree of the inner or sternal portion. This occurred 23 times on the left and 27 on the right side. Frequently the sternal end is fairly well developed, sometimes it survives only as a small cartilaginous nodule; in every case it is attached near the upper part of the manubrium sterni. With five exceptions (Cases 17, 21, 34,

No.	Name of reporter.	Sex and age.	Family history.	Head.	Clavicles.	Aspect and intelligence.	Remarks.
1	Abram.	M. 16	—	Head broad and bossed.	Only small nodules articulating with the sternum on each side, connected to a well-developed coracoid process by strong fascial bands representing the costo-coracoid membranes, to which the muscles are attached. The subclavius muscle is absent.	—	Dentition irregular; no episternal notch; manubrio-sternal junction opposite the attachment of the third costal cartilage.
2	Still.	M. 6½	Mother died from tuberculosis. Two other children healthy.	Head large and broad; anterior fontanelle 4¼ by 3½ inches.	Sternal ends present on both sides, more developed on the left; acromial portions absent.	Did not talk till 3½.	Face peculiar, nose flattened, terminal phalanges of thumbs short and nails curved. Walked late.
3	Seymour Taylor.	M. 20	—	Sketch shows head normal.	Sternal ends present and sterno-mastoid muscles attached thereto. Some attempt at development of the acromial end. Strong fibrous tissue representing the costo-coracoid membrane.	Intelligent.	—
4	Walsham.	M. 11	—	Head typically rickety; fontanelle unclosed.	Sternal two-thirds present on both sides, acromial one-third absent. Fibrous tissue passes from the sternal portion to the coracoid process.	—	—
5	Marie and Sainton.	M. 39	Father and mother well. Mother had six children, one premature. The patient had two children, the elder No. 6; the second died from convulsions at 2½, his head being deformed and open, like his brother, No. 6.	Head very large laterally; frontal and parietal bosses; both fontanelles open.	On the left side sternal end is deeply situated and small. On right side the two halves separated two fingers breadth.	Good.	Face small, nose depressed and deviated to the right; face prognathous, orbits overhanging. Dentition irregular; cleft palate; sternum depressed; genu valgum. Died from hemiplegia; never had syphilis.
6	,,	M. 12	Son of No. 5.	Head large, broad, and bossed; anterior fontanelle open.	Left side, two halves united by fibrous tissue. Right side, sternal part absent, the acromial part ending above the coracoid.	Poor.	Face small; dentition irregular; palate narrow and pointed.
7	,,	F. 47	Father died from paralysis, and mother from exhaustion. Nine children, seven alive and well.	Head large, broad, and bossed; anterior fontanelle and sagittal suture open.	Sternal portions only present in a cartilaginous state 3 cm. long; acromial portions absent.	Good; height, 1·46 metres.	Narrow arched palate; teeth shed; genu valgum; unaware of any abnormality of shoulders. Never had syphilis.
8	,,	F. 10	Daughter of No. 7.	Large head; frontal, parietal, and occipital bosses; anterior fontanelle persistent.	[Sternal portions only] present.	Normal.	Narrow arched palate, late dentition; flat feet, scoliosis, genu valgum.
9	Carpenter.	M.	A son 16 and a daughter 5, normal.	—	Bones on both sides in two halves. Sternal portions 3 inches long united by ligament 1½ inches long; sternal part overrides the acromial part.	Feeble development.	Unaware of any abnormality; sternal depression.
10	,,	M. 19	Son of No. 9.	—	Both clavicles kinked, but the two halves firmly united.	—	Large depression in lower half of sternum.
11	,,	M. 14	Son of No. 9.	—	Left clavicle very arched and prominent. Right side sternal part 2¼ inches overriding the acromial end, which is 1¼ inches; united by ligament.	—	Large transverse process of seventh cervical vertebra.
12		F. 12	Daughter of No. 9.	—	Left side normal. Right side sternal portion 2 inches overlapping the acromial, 1¼ inches.	—	Large transverse process of seventh cervical vertebra; flat feet.
13		F. 8	Daughter of No. 9.	Large head.	Sternal portions small; left side 1¼ inches, right side ⅔ inch. Acromial portions absent. On left side x rays show a faint shadow between the acromion and coracoid. Sterno-mastoid muscle normal. Anterior part of deltoid and clavicular head of pectoralis major absent.	Small	Large transverse process of seventh cervical vertebra; large first (terminal?) phalanges.
14	,,	M. 7	Son of No. 9.	—	On left side the clavicle is notched, but the two halves firmly united. Right side, sternal part, 1⅔ inches; acromial part, 1½ inches; united end to end by strong ligament.	—	Transverse process of seventh cervical vertebra very prominent.

No.	Name of reporter.	Sex and age.	Family history.	Head.	Clavicles.	Aspect and intelligence.	Remarks.
15	Voisin and de Lepinay.	F. 6	Parents died from tuberculosis.	Head brachycephalic and bossed; both fontanelles, the metopic, and sagittal sutures open.	Left represented by a piece 2·5 cm. long at junction of inner and middle thirds; attached to sternum by ligament and extends outwards to the first rib, not to the acromion. Right sternal end 1·5 cm. long, the thickness of a crow quill.	Height, 1·18 metres; thin, intelligent.	Kyphosis and scoliosis, deformed chest. Bony palate not joined, but the soft parts bridge across the deficiency. Congenital dislocation of the radii backwards. Toe thumb longer and the fingers shorter than normal with enlarged ends. Genu valgum and flat feet; teeth irregular.
16	Morand.	—	Only survived a day.	—	Absence of clavicles, sternum, and costal cartilages.	—	—
17	Martin.	M. 30	Father and brothers had the same deformity.	—	Inner end present on one side (which not stated), the bone being only three-quarters the length of its fellow. A nodule of bone was developed in connexion with the coracoid.	—	—
18	Stahmann.	M. 9	—	—	Left clavicle absent and replaced by fibrous or cartilaginous tissue; right normal.	Normal.	Unaware of his defect.
19	Gegenbaur.	F. 56	Information not obtained of the parents of the mother and her two husbands.	—	Left side, sternal end 5 cm., right side, 6 cm. Sterno-mastoids attached to fragments, deltoids to acromion. Clavicular head of pectorals only slightly developed.	—	No other deformities.
20	,,	M. 36	Son of No. 19 by first husband.	—	Acromial portions absent on both sides. Sternal end 7 cm. left side and 6 cm. right side.	Small, 1·52 metres; fat.	Bent xyphisternum.
21	,,	M. 14	Son of No. 19 by second husband.	—	Sternal fragments 6 cm. left side and 5 cm. on right side. Acromial end joined by pseudarthrosis to the sternal end on the left side, absent on the right side.	Small, 1·31 metres.	—
22	,,	F. 22	Daughter of No. 19 by second husband, and had a normal child.	—	Sternal fragments, left 6 cm., right 4 cm. Acromial fragments, left 4 cm., right 5 cm.	—	—
23	Niemeyer.	M.	—	—	Total absence of left clavicle.	—	Scoliosis.
24	Scheuthauer.	M. 56	—	Skull thin and porous, Wormian bones present; fontanelles and sutures still open; head bossing, and an angle at the spheno-occipital synchondrosis.	Rudiments of the sternal ends with a fibrous band passing from the sternum to the glenoid cavity, to which were attached the sterno-mastoid, great pectoral, subclavius, and deltoid muscles. A small process 1 inch long was developed above the glenoid. The subclavius muscle was very large.	Small.	Atrophy of facial bones, malformed nasal bones; thorax flat. Died from phthisis; old hæmorrhage in frontal lobe.
25	,,	M. Old	—	Vault of skull compact; fontanelles and sutures open.	Small sternal nodules on both sides.	—	Atrophy of the facial bones. Skeleton in the Museum of Anatomy and Pathology, Vienna.
26	Dowse.	F. 15	Mother and six sisters well; no information as to father.	Large head; frontal and parietal bosses, with a mesial depression extending from the frontal region.	Only acromial ends present, slightly better developed on the right side.	Fat; normal intelligence.	Teeth irregular and ill developed; poorly shaped feet and broad sternum.
27	Kapler.	F. 16	Father and three sisters have congenital talipes varus; one sister dead.	Large head (figured in "Le Traité des Maladies Chirugicales Congenitales," Kirmisson, Paris, Masson, 1898, p. 497).	Sternal fragments only; right 1½ cm., left 4 cm. by ½ cm. broad; no fibrous continuation. Only one head of the sterno-mastoid muscle is present on the right. Other muscles normal.	Small and fat; 1·29 metres; inteiligent.	Talipes varus congenital; great depression of sternum. Phthisical.
28	Hamilton.	♂ ½	—	Fontanelles and sutures abnormally large.	Total absence of both clavicles.	—	Died when 6 months old from marasmus. Numerous congenital dislocations.
29	Guzoni degli Ancaroni.	F. 60	Father and mother dead; well formed.	—	Sternal ends present; left 8 cm., right 5½ cm.; fibrous cord on left side.	Small, 1·47 metres.	Dorsal kyphosis; large intercostal spaces; low sterno-clavicular articulations. Had three abortions at the third month; no cause.

No.	Name of reporter.	Sex and age.	Family history.	Head.	Clavicles.	Aspect and intelligence.	Remarks.
30	Gibert.	F. 15	—	Large head, vault nearly all membranous.	Absent on both sides.	—	Nose crooked, face small. Died from acute osteomyelitis.
31	Todd.	—	—	—	Sternal and acromial fragments ununited on both sides.	—	Condition noted post mortem. Photograph.
32	Van den Bussche.	—	—	—	Sternal ends short; acromial ends absent on both sides.	—	Two illustrations.
33	Hultkrantz.	F. 46	—	Forehead large, median furrow; anterior and posterior fontanelles open.	Sternal ends; left 5 cm., right 4 cm. Prolongations passing out to the coracoid process. Acromial ends absent.	—	Teeth bad, dentition irregular; palate pointed.
34	,,	F. 28	—	Broad head; posterior fontanelle open.	Left side, inner end 6·4 cm., outer 5 cm; outer fragment over-riding the inner fragment. Right side, inner end 4·5 cm., outer absent.	—	—
35	,,	F. 1½	Daughter of No. 34.	Fontanelles and suture enormous; frontal bone cleft to within 1 cm. of root of nose.	Sternal ends; left 2·3 cm., right 1·5 cm. Fibrous prolongations to the coracoids.	—	Palate narrow.
36	,,	F. 1½	Daughter of No. 34.	Persistence of sutures and fontanelles; sagittal suture 2 cm. wide.	Sternal fragments, 1·5 cm. and 2·3 cm., with fibrous bands passing out to the coracoid process.	—	Pointed palate.
37	,,	F. 3½	Daughter of No. 34.	Sagittal suture and both fontanelles open.	Sternal portions 3·2 cm. on each side, with fibrous bands passing towards the coracoid processes.	—	Palate pointed and dentition irregular.
38	Schorstein.	F. 13	Father well, mother rickety; three brothers well. No syphilis or tubercle.	Large head; frontal and parietal bosses, median depression; fontanelles open at 9 years old.	Acromial two-thirds of the clavicle absent on both sides, except for a small nodule near the right acromion which was hardly visible to the X rays; sternal portions cartilaginous. Sterno-mastoid muscles attached to fragments.	Small, thin, anæmic.	Teeth bad and very irregular; slight sternal depression. Walked when 4 years old. Photographs and radiogram.
39	Pinard and Varnier.	M.	—	Head not large.	The bones in two halves on both sides.	Medium-sized, intelligent.	Palate narrow and pointed; never had syphilis. (I have been unable to consult this work, as the volume is not in any of the medical libraries in London.)
40	,,	—	Child of No. 39.	—	The bones in two halves like the father.	—	Patient dead.
41	—	—	Child of No. 39.	Natiform skull.	Both bones angled, but firm.	—	Palate highly arched.
42	—	F. 22	Daughter of No. 39.	Frontal and parietal bosses; sagittal groove; fontanelles closed.	Sternal over-riding acromial portions on both sides.	Very small, 1·51 metres.	Contracted pelvis, angling of sternum, palate narrow, dentition irregular.
43	Hamilton.	F. 38	Eight brothers and sisters normal.	Frontal bosses separated by a mesial furrow.	Sternal portions 2¼ inches long, united to the acromion process by a fibrous band better marked on the left side.	5 feet high, slight.	Scoliosis and lordosis; palate pointed, narrow; dentition very irregular and teeth badly developed. Did not walk till 3 years; double flat-foot.
44	Wolf.	M. Adult	Father had scoliosis: skull malformed like his son. Mother and 11 brothers and sisters well.	Large frontal, parietal, and occipital bosses; deeply sunk posterior fontanelle.	Sternal fragments 6 cm. Acromial parts represented by ligament better developed on the right side.	—	Scoliosis; nose deviated to the right; teeth very defective; muscles normal.
45	Hirtz and Louste.	M. 49	An only son, father dead. Only walked at 3 years old, with late dentition and peculiar aspect. Mother dead; cause unknown.	Forehead small, with prominent bosses and mesial furrow. Anterior fontanelle not closed; the posterior had closed late and irregularly. Parietals were prominent.	Sternal portions thin; left, 5 cm.; right, 4 cm.; that on right side cartilaginous.	Stood in a penguin-like attitude. Lordosis; face flat; intelligent.	Apparent exophthalmos due to depression of inferior orbital rim. Bridge of nose depressed by arrest of development of zygomatic arch. Jaw underhung; dentition late and irregular; palate pointed; palatal suture absent. Looseness of phalanges of the hands; nails affected.
46	Preleitner.	M. 12	—	Characteristics poorly shown in photograph.	Over-riding of the fragments on each side. Sternal portions 6 cm., acromial 3 cm.; adjacent ends enlarged.	Weakly aspect.	Radiogram.
47	,,	F. 8	—	Photograph shows broad bossed head.	Bone divided on both sides; sternal portions 5 cm., acromial portions 3 cm.	Photograph shows flat face.	Nose depressed; eyes deeply set. Radiograms.

No.	Name of reporter.	Sex and age.	Family history.	Head.	Clavicles.	Aspect and intelligence.	Remarks.
48	Shermann.	M. 3	Father and mother normal and well.	Frontal bosses; skull bones poorly ossified; fontanelles and frontal suture open.	Left side, rudimentary; right sternal half present alone. Scapulæ deformed; supra- and infra-spinati and posterior part of deltoid atrophied.	Normal.	Curvature of long bones needing operation. Photographs and radiogram.
49	,,	M.	—	Large square flat-topped head; marked depression behind the anterior fontanelle.	Both clavicles divided into the two halves.		—
50	,,	F. 8	Daughter of No. 49.	Fontanelles and sutures closed; marked depression at the site of the sutures.	Clavicles completely absent and X rays showed no trace; muscles normal.	Nose flattened.	Sternum depressed.
51	Gross.	F. 12	Father, mother, brothers, and sisters normal.	Enormous head, 507 mm. circumference, 174 mm. antero-posterior, and 147 mm. transverse diameters. Prominent frontal bosses; mesial furrow in frontal region, where the suture is open in its upper two-thirds.	Sternal portions 2 cm. on each side, cartilaginous. Clavicular head of pectoralis major small, of deltoid absent, of trapezius absent; sterno-mastoid normal.	Small and poorly developed; 1·18 metres high; orbits sunken.	Palate narrow; dentition irregular. Pigeon-chested, furrowed laterally; dislocation of the shoulder. Adenoids. Photograph and radiogram.
52	Spriggs.	F. 12	Father normal, mother has myxœdema; three other children well. Maternal uncle phthisical.	Cranium very bulging; frontal prominences.	Both clavicles in two halves united by ligament; adjoining ends enlarged; inner over-rides the outer part.	Face small; intelligent.	X rays show fragments very imperfectly ossified; depression of sternum. High palate; irregular dentition.
53	Poynton and Miller kindly lent the author the specimens shown.	M. ½	Mother and father and four brothers and sisters normal.	Skull cap shown; large fontanelles and wide sagittal, metopic, and lambdoidal sutures.	Both clavicles completely absent, but well-developed bars of cartilage partially ossified, attached to the first costo-chondral junction and base of the coracoid process by ligament. (See description in text.)		Died from marasmus. Specimens obtained post mortem.
54	Villaret and Francoz.	F. 36	Father died, 36; cause unknown. Mother died, 35; cardiac trouble and emphysema. They were first-cousins. Grandmother and five brothers and sisters normal. An uncle deaf from birth.	Fontanelles did not close till tenth year. Frontal, parietal, and occipital bosses; median frontal groove.	Left side normal, but highly arched. Right side, sternal portion 6·5 cm., overriding the acromial portion, which is small and atrophied and represents the outer third. The two united by ligament.	Slightly built, 1·43 metres.	Perforation of the palate posteriorly, the palate being very arched. Dentition poor and irregular; supplementary canine; jaw underhung. Nose deviated to the left. Orbital margins below are not prominent, giving the appearance of exophthalmos. The transverse process of the seventh cervical vertebra more prominent on the affected side; slight scoliosis; narrow pelvis.
55	,,	F. 9	Daughter of No. 54, born at 7 months. Father was alcoholic and epileptic. This is the third child. (First, born at 7 months, died in 5 hours; the second, full time, died at 21 months from tubercle. The first two children were by a different father.)	Frontal, parietal, and occipital bosses; median frontal furrow. Ossification completed in seventh to eighth year.	The clavicles on both sides are in two halves and are similarly arranged. The sternal fragments are 4 cm. long and are cone-shaped. The acromial fragment is small, moves with the scapula, but is little moveable on it. The two portions are united by a fibrous cord 2 cm. long. The coracoid processes are easily felt. X rays showed the fragments to be cartilaginous. Muscles normal.	Height, 1·14 metres.	Palate not perforated, though arched, with depression at its highest point; teeth small and irregular; lower lips rather large.
56	,,	M. 6	Fourth child of No. 54 born at full time.	Frontal, parietal, and occipital bosses; mesial frontal furrow deep. Anterior fontanelle not closed.	Both bones in two parts; sternal fragment left side 4 cm., right side 3 cm. The acromial fragments slightly more marked than in the last case. No fibrous attachment to be felt.	Nose depressed, orbits deep; face is overhung by the prominent forehead.	The head of the humerus is easily dislocated on both sides owing to the laxity of the ligaments. The transverse processes of the seventh cervical vertebra feel prominent. Palate arched; dentition irregular.
57	,,	F. 7/12	Fifth child of No. 54.	The same as the last case; large open fontanelles.	Clavicles normal.	—	—
58	Convelaire.	F. 23	Mother dead; cause unknown. Father living and well.	Large frontal bosses, mesial frontal furrow; anterior fontanelle open.	Clavicles only represented by nodules 2 cm. long articulating with sternum and to which are attached the sterno-mastoid muscles. No fibrous prolongation felt.	—	Dentition bad. Lordosis of spine; genu valgum more marked on left side.
59	,,	M. 11/12	Second child of No. 58. First child normal.	Sutures and fontanelles large and open.	Clavicles absent on both sides.	—	—

36, and 48), when the sternal end alone is present, the condition is bilateral; of these exceptions, the clavicle on the opposite side is normal in one, in two portions in three, and rudimentary in the fifth. In marked contrast to this is the number of cases in which the acromial end alone is present, only two exemplifying this arrangement. In Case 6 a small nodule passing from the acromion to the coracoid process is all that represents the clavicle on the right side, the left bone being normal; in Case 26 the abnormality is bilateral. In neither case is any ligament mentioned passing towards the sternum. It can therefore be laid down as a rule to which there are very few exceptions: firstly, that when half the clavicle is absent it is the acromial portion which is wanting; and secondly, when this condition is present it affects both sides.

When both halves of the bone were present but were ununited (31 instances—14 on the left and 17 on the right side) the condition was usually bilateral. In three instances, however, the opposite bone was normal (Cases 5, 12, and 60); in two it was excessively arched (Cases 11 and 54); and in one it was distinctly notched (Case 14). Great variation in size is exhibited by the two fragments, but the inner is almost invariably the larger of the two, as is well seen in the first case which came under my own observation. In this case, too, the ligament binding together the two portions illustrates the bond of union usually found when both fragments are well developed. In only one or two cases when both fragments are well represented is the absence of fibrous or ligamentous tissue noted.

Where the sternal end alone is present it is interesting to examine the records, for in 26 instances (14 on the left and 12 on the right side) a fibrous or ligamentous prolongation is found extending outwards. When these prolongations are tabulated according to their position, it is singular to find that the majority pass, not to the acromion, but to the coracoid process. Scheuthauer found on dissection a band passing to the upper part of the glenoid cavity having in its outer end a process of bone an inch in length. This state of affairs was the same on both sides.

Table of Ligamentous Prolongations.

	Left.	Right.		Left.	Right.
To coracoid ...	10	9	To rib	0	1
To glenoid ...	1	1	To acromion ...	1	1

Seymour Taylor and Walsham each remarked that this ligament appeared to represent the costo-coracoid membrane. Martin, in the earliest record we have, gives a clear account of a nodule of bone plainly felt connecting the sternal end of the clavicle to the coracoid process; the side, however, is not mentioned.

The primitive shoulder girdle is composed of one dorsal and two ventral bars; the anterior ventral bar is the precoracoid, and the posterior is the coracoid. In fishes a dermal plate is added to the precoracoid, and the fusion of these elements is said to give rise to the clavicle in higher vertebrates. In birds, as flying necessitates a pectoral girdle firmly adjusted to the trunk, the coracoid and clavicle are well developed. In all mammals, except monotremes, the coracoid as a bone reaching the sternum practically ceases to exist. In carnivora and herbivora the clavicle also is undeveloped, but in man and other animals which use their upper extremities in climbing, eating, and similar actions besides mere progression, the clavicle is well represented, although only uncertain traces of the coracoid and precoracoid remain.

Ossification is stated to commence in the clavicle in the middle of the shaft, and to extend through the underlying cartilage to its extremities. The process begins in this bone earlier than in any other. An ossific centre can be recognised in it about the sixth week, but Couvelaire has detected it even as early as the thirtieth day. The inner end has a secondary epiphysis which appears later.

Considering the affection hereditary cranio-cleido-dysostosis, we find that it affects those bones which develop in membrane, preventing and retarding their development and ossification; therefore the portion of the clavicle which is most affected will be that part which develops primarily in membrane. Among the cases we find that the sternal portion is present alone on the left side on 23 occasions, and the acromial portion alone only once; while on the right side the figures are 27 and 2 respectively. That is to say, the sternal portion was present alone on 50, and the acromial portion alone on only 2 occasions. From this we are driven to the conclusion that the outer end of the bone is the part which arises from membrane, while the inner originates in cartilage. Whether this membranous portion represents the dermal structure found in fishes, or is a membranous structure which has arisen *de novo*, as Mr. Jenkins has suggested to me, I am unable to say, but that it is membranous in origin is, I think, beyond doubt. The frequency with which the bone is met with in two separate fragments (31 times), or in which the bone, although joined, shows evidence of its two halves by angling or notching (7 times), is strongly in favour of a double origin. Additional evidence of the dual origin of the bone may reasonably be adduced, however, from other well-recognised characteristics.

1. The supra-clavicular nerve is occasionally included in a foramen on the anterior and upper aspects of the bone at a point a little external to the centre. This inclusion indicates that the nerve has been surrounded by the fibres of the growing bone, possibly, though not necessarily, at the site of junction of the two portions.

2. On rare occasions a vein, passing from the cephalic to the external jugular, is included in a foramen at the same situation. This vein represents the original termination of the cephalic vein still to be seen in some animals, but which has been diverted in man, presumably by the development of the clavicle. Its inclusion may be accounted for in the same manner as the nerve.

3. The curvatures of the bone differ, the inner being in the opposite direction to the outer. These are well seen in early life before muscular action has come into play; indeed, they are well seen in cases where the bone is present in two halves, and muscular action can have had no effect.

4. There is very frequently a tubercle at the junction of the middle and outer thirds of the bone on its anterior aspect, which goes under the name of the deltoid tubercle on account of its supposed association with the development of that muscle. This tubercle can often be felt well marked in children of poor musculature at an age when muscles have as yet left little impression of their bony attachments. It is also significant that on the under and posterior aspects of this part of the bone there is another prominence developed—namely, the conoid tubercle. These tubercles may be analogous to the prominent line frequently left at the junction of epiphysis with diaphysis.

5. On looking at the configuration of the bone it is at once seen that the inner two-thirds are cylindrical, like most limb bones developed from cartilage, while the outer third is flat and tabular, resembling more the membranous cranial bones.

6. In about 45 per cent. of bones a small nutrient foramen can be seen on the under surface between the deltoid and conoid tubercles, some distance to the outer side of the main nutrient foramen.

Many observers have endeavoured to recognise the morphological portions of the clavicle by means of microscopic sections and different staining reactions, but so far without throwing any very clear light upon the subject. Gegenbauer, whose description has been followed in most anatomy books, placed the primitive membranous portion in the middle of the bone, and stated that cartilage developed later at each end, and from these cartilages the bone increased in length. Kölliker, from the investigation of embryo rabbits of 2 millimetres, thought the bone began to ossify in the centre over a bar of cartilage, this cartilage differing in some respects from that found elsewhere in the body. Couvelaire, on cutting sections through human embryos of 19 and 50 millimetres long, came to the conclusion that the bone ossified from a core which was completely surrounded by cartilage. Paterson, from the microscopic examination of sections of rabbits, rats, and human embryos, formed the opinion that "the clavicle possibly contains more than one morphological unit (judged by its ossification directly in the outer part and indirectly through cartilage in its inner part)." My own investigations strongly support this view. My former colleague, Mr. Jenkins, by means of serial sections, has constructed a wax model of the shoulder girdle in relation to the trunk of a human fœtus of 16 millimetres long. The model shows the clavicle in two parts, both apparently cartilaginous. Mr. Jenkins believes that the inner mass forms the sternal end of the clavicle, while the outer mass disappears, the acromial end being developed from separate mesodermal tissue.

If, then, we admit that the bone is made up of two halves

and the outer represents the membranous portion, what does the inner represent? And here, although absolute proof is impossible, the different possibilities are worthy of consideration. These possibilities are two in number.

1. That the inner end is a new formation altogether, and does not represent anything found in the primitive shoulder girdle of lower animals.

2. That the inner end represents part of a primitive bar of cartilage or bone extending from the glenoid cavity to the sternum, of which the other parts are represented by the coraco-clavicular ligaments and part of the coracoid process.

The first of these alternatives has nothing to recommend it, while very serious objections can be raised against it. For in all developmental errors those structures which have the oldest phylogeny appear earliest and therefore suffer least, while the more recent the modification the later it appears, and consequently the more will it be affected. Now, according to the table of defects in the clavicle which has been drawn up we see that the outer end suffers far more frequently than the inner, which therefore must be looked upon as the more ancient structure.

We are in consequence thrown back on the second of the two alternatives, and everything points to the probability of this being the more correct of the two views. In many of the cases in which the acromial end of the clavicle is suppressed, this bar, extending from the sternum to the glenoid cavity, is well represented by the more or less developed inner end of the clavicle, by the ligament already mentioned proceeding outwards to the coracoid process, and by the base of the coracoid itself. When both halves of the bone are present but ununited this bar is represented by the inner half of the bone, the ligament joining the two halves, the coraco-clavicular ligaments and the coracoid as before.

While, therefore, there can be little doubt that the inner portion of the clavicle does represent a part of this primitive bar, there still remains the task of deciding whether this bar is a precoracoid or a coracoid, and here again, though it is impossible to dogmatise, the possibilities may be set the one against the other. In endeavouring to trace, in the component parts of the greatly modified and highly specialised shoulder girdle of man, the representatives of the elements of the primitive pectoral girdle, I can only discuss those views which this investigation indicates as the more probable. The chief possibilities may be stated as follows:—

1. The coracoid is represented by the base of the coracoid process, the coraco-clavicular ligament, and the inner two-thirds of the clavicle, the precoracoid being represented by the tip of the coracoid process and the costo-coracoid ligament.

2. The coracoid is represented by the base of the coracoid process only, and the precoracoid by the inner two-thirds of the clavicle and the costo-clavicular ligaments.

3. The coracoid is represented by the tip of the coracoid process and the costo-coracoid membrane, the precoracoid being either absent or, as in the second possibility, represented by the inner two-thirds of the clavicle and the costo-clavicular ligaments.

The coracoid process develops from a primary ossific centre which appears during the first year at the base and extends, not only towards the apex, but also towards the base, and forms part of the glenoid cavity. Several secondary centres, which appear later, only form a small portion of the process. Sabatier holds that the basal portion alone represents the ancestral coracoid, and as far as the coracoid process is concerned this view seems to be supported by two significant facts.

First, it is in the basal portion of the bone that the primary centre of ossification appears, pointing strongly to the fact that this portion of the bone has the oldest phylogeny. Secondary ossific centres, we know, have frequently but a short ancestry, being developed in response to the requirements of function. A good instance of this is seen in man, where the adoption of the erect attitude has rendered the older or reflected attachment of the rectus femoris muscle almost useless, and in consequence a new or straight tendon of origin has appeared; in connexion with this there has developed a small secondary epiphysis capping the anterior inferior spine of the ilium, which is present in no other animal. The same reason—namely, requirements of function—probably account for the appearance of the variable number of small secondary epiphyses in the coracoid process. The short head of the biceps and the coraco-brachialis probably account for the appearance of one or more at the apex of the process; while the long head of the biceps may account in the same manner for the small scale-like epiphysis which is sometimes present at the base.

A second point in favour of Sabatier's view is that this primary basal epiphysis extends downwards to take part in the formation of the glenoid cavity, for throughout the range of animal life the coracoid is a far more important factor in the shoulder girdle than is the precoracoid, and is the element which takes part, and sometimes takes the largest share, in the formation of the glenoid cavity, the remainder of the joint cavity being formed by the scapula, while the precoracoid is altogether excluded. As the ligament in the specimen from my second case is attached to the back of the coracoid near its base, it is fair to assume that it is probably in morphological unity with this portion of bone and is probably part of the old coracoid. This means that the specimen represents an almost complete coracoid bone, made up of the inner two-thirds of the clavicle, the base of the coracoid process, and the intervening coraco-clavicular ligament, and therefore answers to the conditions laid down for the coracoid in possibility No. 1. The relationship of parts revealed in the wax model, already referred to, also seems to support this view.

There still remains to be accounted for the tip of the coracoid process and the costo-coracoid ligament. This ligament, sometimes termed the bicornuate ligament, is a distinct thickening of the costo-coracoid membrane, running from the tip of the coracoid process along the lower margin of the subclavius muscle to the cartilage of the first rib, and can frequently be traced on the sternum close to the sterno-clavicular articulation. It is sometimes well marked in man, and occasionally presents in its substance chondral particles (Sutton), but is better marked in the quadrumana. This ligament and tip of the coracoid process would necessarily represent, in a rudimentary condition, the precoracoid bone as laid down in possibility No. 1, and not, as some believe, the coracoid bone itself. For if we allow for the moment the costo-coracoid ligament and tip of the coracoid process to be the representatives of the coracoid bone, as in possibility No. 3, it would follow that the base of the process, which from its manner of ossification is evidently not in series with the tip, must consequently be the precoracoid; and we here have the precoracoid forming part of the glenoid cavity to the exclusion of the coracoid—a state of affairs which, I believe, is unprecedented throughout the animal kingdom, and certainly unknown in the primitive type. Possibility No. 3, therefore, does not commend itself.

Returning to possibility No. 1 it will be argued that the reversed relationships of the two bars, the coracoid being cephalad to the precoracoid, renders this view untenable. But the reversed relationship is more apparent than real, for the inner ends of the two bars are in close proximity at the sternum, while of the outer ends, the coracoid is the base of the coracoid process, and the precoracoid is the tip of the same process of bone. In the former the line of the bar is angled in a cephalad direction at the coraco-clavicular ligaments, while in the latter the tip of the coracoid process is curved forwards and downwards in a caudad direction owing to the function it has assumed—namely, that of giving origin to the short head of the biceps, which according to Brodie was originally attached to the acromion process, the outer part of the coraco-acromial ligament representing the old tendon of origin. It is only fair to assume that the present shape of the coracoid process is largely influenced by its present function, and that originally the tip was nearer the head than the base of the bone, and therefore, the true position of the tip of the process and the costo-coracoid ligament is, as the name indicates, precoracoid.

Sutton's view, that the precoracoid bar is represented in man by the interarticular cartilage at each end of the clavicle, is not borne out by the condition found in the shoulder girdle of any of this series of cases, and fails to take into account the different origins of the two portions of the clavicle. Speaking of the interarticular fibro-cartilage at the sternal end Professor Paterson states that "the meniscus is not to be regarded as homologous with the rodent supra-sternal cartilage, but is rather to be associated morphologically with the cartilaginous inner end of the clavicle" If, then, as

we have assumed, the inner end of the clavicle is the inner end of the old coracoid process, this meniscus at its inner end may quite well represent the epicoracoid bone found in monotremes. Howe's view that the epicoracoid is represented by the tip of the present coracoid process leaves the costo-coracoid ligament unaccounted for. Against the second possibility may be urged the grave objection that it leaves the tip of the coracoid process and the costo-coracoid ligament unaccounted for. Considering, therefore, the relative merits of these different views it must be admitted that the possibility which is placed first appears to have most in its favour, while the reasons which can be urged against it are much less weighty than those against either of the other two.

Theories as to Cause.

A great many opinions as to the cause of the condition hereditary cranio-cleido-dysostosis have been advanced. Alcoholism, tuberculosis, syphilis, and rickets have all been advocated; but the accuracy of these opinions appears less and less probable with the growth of our knowledge of the subject. The position that hereditary cranio-cleido-dysostosis bears to achondroplasia is helpful in enabling us to obtain an idea of the true nature of both these affections, the former being a condition of maldevelopment of the membrane bones, while the latter is a condition affecting the development of those bones which originate in cartilage.

It might be suggested that the cause in both affections is due to the presence or absence of certain chemical constituents which are necessary for the correct ossification of membrane bones in the one case and of cartilage bones in the other: in much the same way as we know that hæmophilia must be due to a hereditary absence from, or presence in, the body of certain chemical constituents. Couvelaire advanced a somewhat similar view when he said that hereditary cranio-cleido-dysostosis was "the expression of a general taint with a predominance in certain osseous groups." This idea was prompted by the recognition of the frequency with which other malformations were met in individuals suffering from this condition.

In support of this the following defects are noted in this series of 60 cases: peculiarities in the shape of the sternum, 10 cases; scoliosis, lordosis, or kyphosis, 11; prominence of the transverse processes of cervical vertebra, 6; genu valgum, 4; peculiarities of the hands, 4; curvatures of the long bones, 3; and flat and pigeon chests, 2 each. Besides these anatomical departures from the normal, a large number of the patients are mentioned as undersized and of poor general development. In some the intelligence seemed to be diminished, but this was by no means the case in the majority. Couvelaire gives no hint as to what he thinks this taint may be. We are, therefore, constrained to leave the discovery of the cause until such time as we shall have a more accurate knowledge of the forces, chemical or vital, which govern development.

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Brook-street, W.

TWENTY CASES OF PULMONARY TUBERCULOSIS TREATED BY CONTINUOUS ANTISEPTIC INHALATION.

BY DAVID B. LEES, M.D. CANTAB., F.R.C.P. LOND.,
CONSULTING PHYSICIAN TO ST. MARY'S HOSPITAL AND TO THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

TWELVE months ago, on Nov. 2nd, 1909, I read before the Therapeutical Section of the Royal Society of Medicine a paper on the Physical Signs of Incipient Pulmonary Tuberculosis and its Treatment by Continuous Antiseptic Inhalations.[1] In this paper I gave full details of the method of treatment advocated, and narrated 30 cases of incipient or early pulmonary tuberculosis in which it had been employed with success. Now that another year has elapsed I desire to record the present condition of these cases, and to add an account of 20 subsequent cases in which the same method of treatment has been used.

My summary of the results a year ago was as follows:—

I consider 22 out of the 30 as certainly cured. In 13 of them the cure has stood the test of time, for they have all remained well and in active work for a whole year. These are Cases 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14, 15, and 16. To these may probably be added Case 1. Eight other cases—Nos. 18, 19, 21, 22, 24, 25, 26, and 29—are apparently quite well, but they have not yet stood the test of time. Five cases—Nos. 10, 11, 17, 20, and 27—I look upon as nearly cured. Only three cases remain about which one feels any doubt as to the favourable issue; they are Nos. 23, 28, and 30, and all these three cases have improved very considerably.

In a subsequent letter[2] I stated that "in all these three cases the doubt has been replaced by a practical certainty of cure."

At the end of a year after the reading of my paper I have to report that of the 14 cases in the first group at least 12 are still quite well and in constant active work—these are Cases 2, 3, 4, 5, 6, 7, 9, 12, 13, 14, 15, and 16. About the two others (Nos. 1 and 8) I have no further information. Seven of the eight cases whom I classed as "apparently quite well" have remained quite well during the last year and in active work. These are Nos. 18, 19, 21, 24, 25, 26, and 29. The eighth (No. 22) had a slight relapse in December and January at a time when he had reduced the use of the inhaler to two hours daily and was working hard for ten hours a day. He lost 4½ pounds in weight, the dull areas in his lungs became larger, and the air-entry feeble, with slight crepitus at his apices. But a fortnight in bed with persistent inhalation restored him. On March 8th, 1910, he had gained 9 pounds in weight and his physical signs were much improved. On Oct. 26th, 1910, he writes that he has been continually hard at work since February, and that he is able to do his business without undue fatigue. He has still a slight cough.

Of the five cases—Nos. 10, 11, 17, 20, and 27—which I described as nearly cured, Case 10 wrote to me some months ago that she was quite well and could perform her duties without fatigue; about Nos. 11 and 17 I have no further information. No. 20 had a slight relapse in January, 1910, after having discontinued the inhaler for several weeks. A return to the treatment quickly produced an improvement, and she again gained weight, but signs of a small cavity in the outer and upper part of the right lung became evident. Under persistent treatment these signs progressively diminished, and in October, 1910, she is stated to be apparently quite well. Case 27 is unusually chronic, and has had pain in her right chest from time to time, but the physical signs are slowly but steadily improving. She has no cough and is increasing in weight.

Finally, as to the three cases Nos. 23, 28, and 30. No. 30 writes on July 9th, 1910: "It is exactly a year to-day

[1] The paper was published in the British Medical Journal of Dec. 11th, 1909, and also in the Proceedings of the Royal Society of Medicine.

[2] Brit. Med. Jour., Dec. 25th, 1909.

that I was taken ill. My weight is 11 st. 7 lb." [total gain 13½ pounds]. "My breathing is very good, and I have a good appetite. I am enjoying very good health." He has been actively at work. The little boy, No. 28, has remained quite well, and his physical signs are quite satisfactory. He has gained 7 pounds in weight. Case 23, the most severe of all the thirty except Case 3, writes on Oct. 25th, 1910: "I feel quite well. I have been back at business since April, and am stronger than when I returned. I feel no fatigue after the day's work, and have played cricket and golf all the summer. When I returned in April my weight was 12 st.; it is now 12 st. 4 lb."

CASE 31.—The patient, aged 69 years, was seen at his home in consultation with Dr. Hickley of South Lambeth-road on July 20th, 1908. Not a temperate subject. Had an operation for hæmorrhoids six months ago. Hæmoptysis for a week three months ago. Thinner lately, but had very little cough. Four days ago dyspnœa developed suddenly, and was found by Dr. Hickley to be due to pneumothorax on the left side. Gradual improvement took place, but when I saw him the left side was still to some extent distended and the heart displaced to the right. Dullness at all four apices, especially the two lower apices, with crepitation, blowing expiration, bronchophony, and audible whisper. Considering the age of the patient, the history of chronic alcoholism, the pneumothorax, and the marked evidence of pulmonary tuberculosis, the prognosis appeared to be almost hopeless. But he was advised to adopt the plan of treatment by continuous antiseptic inhalation (of which full details were published in my paper referred to above), in the hope of securing at all events some alleviation and improvement. Accordingly he practised continuous inhalation by means of a Yeo's inhaler for six weeks, during the first three of which he remained in bed. He then gave up the inhaler and went to the seaside for a fortnight. He then returned to business, and more than a year later (January, 1910) Dr. Hickley found that he was well and at work. In October, 1910, Dr. Hickley reported that he is still well, and leaves home for his business in the City every morning before half-past eight.

CASE 32.—The patient, aged 38 years, came for advice on June 28th, 1909, on account of attacks of epigastric discomfort with flatulence and shivering, which had recurred about twice a week since he paid a visit to New York three years before. No vomiting, hæmatemesis, or melæna. Smoked "a good deal." Moderate dilatation of the stomach was found on examination, and in addition it was noticed that small dull areas were present at both apices of the left lung only. He had a short rather frequent cough. On August 10th he was no better, and had lost 2 pounds in weight; the dull areas at the apices of the left lung were larger and a little crepitus was detected, but the right lung was still normal. On Sept. 27th the condition was unaltered, and lavage of the stomach was advised. This was performed by Dr. Bindloss of Harrow, and gave much relief. On Nov. 3rd the stomach was found less distended, but the shivering attacks continued, and the possibility of malaria was considered. The spleen was normal. He had lost 3 pounds in weight. There was no cough or sputum, but fresh signs of tubercle were found in the right lung, as well as in the left, with tenderness and crepitus. A blood examination by Dr. Spilsbury showed "red corpuscles, 5,400 000; hæmoglobin, 110 per cent.; white corpuscles, 3900 (polymorphonuclears, 48 per cent.; small mononuclears [lymphocytes], 48 per cent.; large mononuclears, 4 per cent.)" and the conclusion was drawn that the absence of anæmia was against the idea of malaria, while the increased proportion of lymphocytes was in favour of tuberculosis. A little sputum was obtained, and found to contain epithelial cells and some pneumococci, but no tubercle-bacilli. The opsonic index to tubercle was found by Dr. Parry Morgan to be 1·15. On Nov. 11th I saw the patient at his own home in consultation with Dr. Bindloss, when we again found the dull areas in both lungs. He was kept in bed and used continuous antiseptic inhalation (as above defined), the inhaler being removed only at meal-times. Four grains of quinine were administered three times a day. On Nov. 18th no more shivering had occurred, and the dull areas were all distinctly smaller. On the 30th, the treatment having been continued, he was found to have gained 6 pounds in weight, the dull areas were still diminishing, and no more shivering had occurred. There was still a little fine crepitus at the apices. He continued the persistent inhalation for three weeks longer, and on Dec. 20th had gained 1½ pounds more. Omission of the quinine was followed by a slight relapse of shivering and gastric symptoms, but in February, 1910, he wrote: "I am feeling better and weigh 10 st. 1½ lb."—a further gain of 1½ pounds, or 9 pounds in all. In October, 1910, he wrote that he had done his full work since January, that his digestion was now "almost perfect," that the shivering attacks had gradually become less frequent and had been absent for the last five weeks, and that he coughed only when he "caught cold." His weight was now 9 st. 11½ lb. in summer attire.

CASE 33.—A patient, aged 39 years, of Dr. R. H. Wilkin, Wickhambrook, Newmarket, seen on Oct. 13th, 1909. He had had cough two years; hæmoptysis 14 months ago; has not worked since; dyspnœa 12 months; night-sweats; and weight fell from 11 st. 11 lb. to 10 st. 9 lb. Then he improved, lost his night-sweats, and gained weight; but a fresh hæmorrhage occurred three months ago. His weight now was 10 st. 13 lb.; there were dull areas at all four apices, especially at those on the right side; feeble air-entry, with a little crepitus, but no bronchial breathing or audible whisper. Clearly he had offered considerable resistance to the disease; hence further improvement might be hoped for in spite of the long duration. He was treated by continuous antiseptic inhalation. I did not see him again until June 15th, 1910, when he reported that he had worn the inhaler about 20 hours daily for five months, and 18 hours daily for the last three months. He had improved at once and steadily until a month ago, when sudden cold east winds increased his cough. He felt much better, slept well (before using the inhaler he was often kept awake by cough until 2 A.M.), enjoyed his food, and had no indigestion. He looked well, and coughed once only during the examination, but he had lost 3 pounds in weight. His dull areas were distinctly smaller, and hardly any crepitus could be detected. In October, 1910, Dr. Wilkin wrote that the patient was "just holding his own," and that he had not again lost weight, but that he still coughed a good deal and expectorated occasionally. He was not yet able to do even half a day's work.

CASE 34.—A patient, aged 30 years, of Dr. J. W. Ellis of Swavesey, Cambridge, seen on Oct. 18th, 1909. He had been ill eight months; recurrent slight hæmoptysis; "brings up thick phlegm." Teeth very decayed and foul. Large areas of dullness at all four apices and several lower areas. Tenderness, very feeble air-entry, marked crepitus, and some bronchial breathing and audible whisper. The disease was extensive and advanced; the prognosis appeared to be grave. He was very feeble and looked very ill. Under continuous antiseptic inhalation, carried out under special difficulties and rather imperfectly, he improved steadily. On Nov. 15th, 1909, he had gained 5 pounds in weight in three weeks, the dull areas were smaller, and less crepitus was present, with hardly any bronchial breathing or audible whisper. On Dec. 18th he had gained 2 pounds more (7 pounds in all), and the physical signs were still improving. On Feb. 24th, 1910, he was going on well, and had almost lost his cough, his appetite had improved, and he had been able to do two or three hours' work every day. No crepitus could now be detected in his lungs. In October, 1910, he wrote: "I am able to do my work from about 6 o'clock in the morning until about 5.30 at night," but that he weighs 7 pounds less than in February. He had not used his inhaler much of late, and had given up the malted milk. His cough was variable, but at present better.

CASE 35.—The patient, aged 31 years, unmarried, was brought by Dr. J. Ashton of St. John's-hill, Battersea, on Nov. 16th, 1909. She had had cough for six months at least, slight hæmoptysis four months ago. Appetite poor. Dullness at all four apices, and four lower areas, with crepitus, but no bronchial breathing or audible whisper. After treatment by continuous antiseptic inhalation for a fortnight she stated that the cough was "ever so much better," and she had gained 2½ pounds in weight. The physical signs had already begun to improve. Unfortunately, in December she had an attack of colitis, which reduced her strength, and the inhalation was less regularly employed. In February her cough became worse, and it was found that all her dull areas were larger. She was therefore kept in bed for a fortnight, and the inhaler was used persistently except at meal-times. This soon checked the cough, which had become severe, and she looked brighter, but she had lost a pound in weight, and the dull areas were still slowly increasing. The situation of her home in London was such that it was difficult to obtain sufficient fresh air, so she was sent to Ventnor, where the windows were kept widely open and she used the inhaler continuously. After five weeks she returned much improved, and the inhalation treatment was again reduced. Her condition once more became less satisfactory. But a return to more thorough treatment again produced an improvement, and when I saw her on Oct. 2nd, 1910, she had gained 3½ pounds in the last seven weeks, and the physical signs were much more satisfactory. Total gain, 7½ pounds. She is to spend the winter at Arosa in Switzerland under medical observation, and is to practise antiseptic inhalation eight hours a day for the first two months and six hours a day subsequently.

CASE 36.—The patient, aged 53 years, married, was sent by Dr. G. A. Simmons of Westminster on Nov. 19th, 1909. She had had short hacking cough on and off for four years, with occasional streaks of blood and small clots in the expectoration. Her mother had died from phthisis at 52, and an uncle and two aunts had died from the same disease, in two cases after only a few weeks' illness. Dullness was present at all four apices and several lower areas, with extensive crepitus and apical tenderness. She was advised to remain in bed for ten days and practise continuous antiseptic inhalation. This was carried out, but the calls on her time were such that subsequently she could not use the inhaler more than two hours daily. She visited me again three months later (Feb. 15th, 1910), when I found that she had gained 9 pounds in weight, that the dull areas were all smaller, that the tenderness had entirely disappeared, and that no crepitus could be heard. I have not seen her again since February, 1910, but in answer to my inquiry Dr. Simmons writes (Oct. 13th, 1910): "Mrs. —— recovered completely, as far as could be made out, from her lung trouble; but she died about three months ago from cerebral hæmorrhage."

CASE 37.—The patient, aged 28 years, married, was seen at her home in consultation with Dr. Ashton of Battersea on Dec. 14th, 1909. Cough, called "nervous," for four years. No hæmoptysis. The cough became bad and accompanied by expectoration seven months ago. *She had been treated for six months by tuberculin injections given regularly every week.* When Dr. Ashton was called to see her in November, 1909, she was exceedingly ill, seemed collapsed, and had a temperature of 103° F. He at once stopped the inoculations, and suggested that she should adopt the treatment by continuous antiseptic inhalation as advised for Case 35. This was begun on Nov. 17th, 1909. Improvement followed immediately. After a fortnight the temperature had fallen to 101°, after a second fortnight it was normal. Her condition improved rapidly and steadily. When I saw her with Dr. Ashton on Dec. 14th, 1909, she was sitting up in bed, happy and smiling. Her husband and her mother bore testimony to the extraordinary improvement in her condition. I found extensive signs of tuberculous pulmonary disease and evidence of a pleural effusion on the left side. This was aspirated by Dr. Ashton and a pint of clear serous fluid was withdrawn. After this there was further improvement and she was able after a while to go out of doors.

More than four months later, in May, 1910, Dr. Ashton sent her to my house for an opinion about a small swelling at the site of the aspiration, from which pus exuded. I found that there was still much dullness and absence of breathing at the left axillary base in the neighbourhood of this opening, that the left side was very little used in respiration, and that there were signs of a dry cavity at the right apex. She was admitted into St. Mary's Hospital through the kindness of my colleague Dr. Willcox, and small pieces of the eighth and of the ninth ribs were removed by Mr. Clayton-Greene, and a drainage-tube inserted. Her general condition improved after this operation, and she returned home, but the discharge continued and she gradually grew weaker. Four months later she was readmitted into St. Mary's Hospital in a moribund condition. A necropsy was made by Dr. Spilsbury on Nov. 9th, 1910. The left lung was quite collapsed. Its upper lobe was wholly converted into a branching cavity. A smaller cavity existed below the apex of the left lower lobe, which had ruptured into the left pleura; the rest of this lobe was collapsed. The right upper lobe was universally adherent to the pleura and contained a large cavity. A smaller cavity existed below the apex of the right lower lobe. Much old fibro-caseous tubercle in base of upper lobe and in the middle lobe. Only the lower half of the right lung could have been capable of respiratory function. No caries of rib.

CASE 38.—The patient, aged 23 years, unmarried, was sent to me on Dec. 18th, 1909, by Dr. C. J. Horner of Walthamstow, who had read my

paper already referred to. She had had cough about a month, occasional night-sweats, loss of weight, some pyrexia (to 100° F.), and occasional pain at the left posterior base. Slight dyspepsia. No hæmoptysis. Her weight now was 8 st. 1½ lb.; two years ago it was 8 st. 10 lb. Dullness at all four apices, and two lower areas in the right lung, with poor air-entry but no crepitus, no prolonged expiration, and no audible whisper. Marked dullness and distinct pleural friction-crepitus at the left posterior axillary base. Under treatment by continuous antiseptic inhalation her cough ceased within a week, and there were no more night-sweats. The inhaler was worn persistently. On Jan. 18th, 1910, she had gained 3½ pounds in weight; there was better air-entry and very slight crepitus at the end of inspiration; the friction at the left base had now disappeared, and the area of dullness at this place had resolved itself into two separate dull areas. She felt so much better that she desired to go back to her work as a teacher. On Jan. 30th, 1910, she looked well and had a good colour. She felt quite well, the dyspepsia had disappeared, and no cough since the last visit. She had gained 3 pounds more in weight. The dull areas were all much smaller; a little occasional crepitus could still be heard. She was permitted to return to work. On Feb. 25th, 1910, she had gained 2 pounds more, making a total gain of 8½ pounds, and had now her normal weight of 8 st. 10 lb. She had done her full work as a school-teacher for a month without fatigue. She was advised to use the inhaler six hours a day for three months longer and to practise breathing exercises.

CASE 39.—The patient, aged 29 years, was sent by Dr. Hingston of Liskeard on Jan. 29th, 1910. He had had cough for some months; no hæmoptysis. His father died from phthisis at 64; a brother died from the same disease at 35. Dullness at all four apices and four lower areas; poor air-entry and slight crepitus, but no prolonged expiration or audible whisper. Weight now 12 st. 4½ lb.; he formerly weighed 13 st. Under continuous antiseptic inhalation he improved at once. On Feb. 22nd, 1910, he felt "much fitter, in fact quite well," had lost his cough, and had gained 6½ pounds in weight. His dull areas were all smaller, there was now good air-entry at the left apex, rather poor entry at the right apex, with slight prolongation of expiration at the right apex posteriorly, and slight tenderness and some inspiratory crepitus at the right lower apex; no other morbid sounds. On March 22nd, 1910, he felt "extraordinarily well" and "better than he had felt for two years." Had inhaled for eight hours daily and at night. The physical signs showed further improvement. In April and May he travelled to Egypt and the Mediterranean, still using his inhaler on an average four hours daily. He ascended the Great Pyramid so fast that he tired out his Arabs, and felt "perfectly fit" after an hour's "very hard climb" on Vesuvius. As the result of this hard exercise his weight had fallen to 12 st. 2 lb., but he felt and looked very well. On July 23rd, 1910, he stated that he was quite well and had walked 28 miles without fatigue.

CASE 40.—The patient was a clergyman, aged 47 years, sent by Dr. T. G. Lithgow of South Farnborough, on Jan. 30th, 1910. "Caught cold" in October, 1909 (had been regularly visiting one of his parishioners suffering from phthisis who died in March, 1910); felt very ill during the week following Christmas. "Very violent cough with heavy yellow expectoration, and a few streaks of blood" during the last three weeks. Dull pain over his chest lately, and several attacks of severe dyspnœa had occurred, lasting from 10 to 15 minutes. His appetite was poor, he slept badly, and felt quite unfit for work. I found large dull areas at all four apices, and four lower areas, with poor air-entry but only slight crepitus, indicating an extensive pulmonary tuberculous infection but in an early stage. There was obvious dyspnœa during the examination, with deep breaths and frequent short cough. His nervous tone was very low, he started when gently percussed, and his knee-jerks were much exaggerated. Some years previously he had experienced a "nervous breakdown," and of late excess of study and hard work, with other unfavourable circumstances, had much reduced his strength.

The prognosis appeared to be extremely gloomy. He was advised to go to bed at once on his return home, to practise continuous antiseptic inhalation, and to take milk and malted milk at frequent intervals. On the sixteenth day of his use of the inhaler his wife made the following note: "Temperature nearer normal; sleep natural (seven hours); cough much less; pain in lung gone; catarrhal condition almost gone; emaciation (of face) less; breathlessness better; hearing better; nervous irritation gone; mental depression better." On Feb. 23rd, 1910, Dr. Lithgow reported: "He came downstairs yesterday and feels better. No cough while wearing inhaler, but fresh air seems to irritate. Temperature has on five occasions since 30th Jan. been barely 99° F.; never above. Dyspnœa less." I found that he had gained 4½ pounds in weight; that his nervous tone was better; that nearly all the dull areas were smaller; that there was more entry of air and very little crepitus. He was advised to apply for six months' leave of absence, but to remain at home for the present, using the inhaler persistently in his own house and garden.

On March 16th, 1910, he had gained an additional five pounds (or 9½ pounds in all); his physical signs were still improving, and no sign of breaking down of lung had appeared. As he complained of heart-burn, a mixture containing bicarbonate of soda, bismuth, and eight drops of tincture of nux vomica three times daily was prescribed. (Dr. Lithgow had previously given him three minim doses of liq. strychnin. thrice daily for three or four weeks.) On April 6th Dr. Lithgow wrote that "after some jerkings 12 days ago he discontinued the medicine, but on April 2nd both legs were convulsed and the right arm, with risus sardonicus of right side of face. A squint is said to have been noticed, and there has been a dislike of bright light. Pupils normal. Urine clear, 1015, acid, no albumin." On April 14th I saw him at his home in consultation with Dr. Lithgow, as the attacks of spasm had recurred and double (convergent) squint had been observed. I found that there had been no headache, vomiting, delirium, hallucinations, constipation, or pyrexia. The urine was normal. It was now three weeks since the nux vomica was omitted, yet the spasmodic attacks were more frequent though less severe. The double squint, when it occurred, was convergent. The contact of the stethoscope, also tickling of the sole, made him start. Knee jerks moderately increased; no clonus. Sensation normal. Cough had almost entirely ceased, and the physical signs were very satisfactory. We concluded that the nervous symptoms were not due to strychnine, were not indications of tuberculous meningitis, and were not uræmic. They were obviously the expression of a functional neurosis. Massage was ordered. On April 17th a marked change for the better was reported and the improvement was maintained. On May 6th Dr. Lithgow stated that he was "still improving." In October, 1910, Dr. Lithgow informed me that he was still making progress, but that his nervous tone was not yet normal.

CASE 41.—The patient, aged 23 years, was brought to me by Dr. G. D. Pidcock of Hampstead, on Feb. 7th, 1910. In August, 1909, while on the Continent he had a severe "cold," with coryza and cough, which made him feel "run down." In October slight hæmoptysis occurred; it lasted about a week. The sputum was then examined by Dr. Pidcock, and tubercle bacilli were found. A physician who examined him found no physical signs in his lungs, but advised that in view of the discovery of the bacilli, he should be sent to Ventnor and live as much as possible in the open air. This was done. When I saw him some weeks later there was dulness at all four apices and several other areas, with poor air-entry at the left apex, some crepitus at the right apex and at both lower apices, with a little audible whisper at the left upper apex posteriorly. He was advised to adopt the treatment by continuous antiseptic inhalation, but at first it was very imperfectly carried out, and when I saw him again on March 24th he had lost 4 pounds in weight and all his dull areas were larger, though there was still hardly any cough. He consented to make a more thorough trial of the inhalation method, remained in bed for a fortnight, and wore the inhaler persistently for four weeks. On his third visit, on April 22nd, he had gained 4½ pounds in weight and his physical signs were much improved. On June 18th he stated that there had been no cough or sputum since the last visit, and that he felt quite well. Dr. Pidcock states that when the sputum was last examined it contained "only a few bacilli, and these were all clumped."

CASE 42.—The patient, aged 35 years, unmarried, was seen on Feb. 18th, 1910. She had suffered from "hay fever" every year for the last three years. Had had "a little cough lately," and a short cough occurred three times during the examination. She was found to have moderate areas of dullness at all four apices and some lower areas, with feeble air-entry, and over the largest dull area (at the right lower apex) there were some tenderness, slight double crepitus, and some prolonged expiration. Under continuous antiseptic inhalation she began at once to improve. On March 11th she had gained 4 pounds in weight in three weeks; all her dull areas were smaller, and the tenderness at the right lower apex had disappeared. She was advised to inhale eight hours daily for four weeks longer. On April 15th she felt better and had gained 3 pounds more (total gain 7 pounds); the cough was now very slight and only before breakfast, and the physical signs were less marked. On May 21st she felt very well, had no cough and no sputum, and her appetite was good. She was advised still to wear her inhaler four hours daily, and all day long if an attack of hay-fever should occur. A letter from her, dated Oct. 11th, 1910, says: "I am still using the inhaler for two or three hours a day; it has been a great boon to me when I have had the beginnings of hay-fever ..... and I wish that so simple a treatment were more widely known."

CASE 43.—The patient, aged 31 years, unmarried, was sent by Dr. Simmons of Westminster on Feb. 25th, 1910. She had had cough more or less for two years, worse for some months. No hæmoptysis. Had lost 6 pounds in weight. A brother died from phthisis at 26, and a sister at 14. Many dull areas were present, the largest being at the right upper and lower apices. Poor air-entry, some prolonged expiration, some crepitus, and audible whisper at the right apex, where cavitation appeared to be developing. She obtained three months' leave of absence from her duties, remained in bed for three weeks, and used the inhaler night and day. I saw her a second time on April 6th; she had gained 4 pounds in the six weeks, all her dull areas were smaller, and the condition of the right apex was much more satisfactory. She came to me a third time on May 13th; she had gained 2½ pounds more, making a total gain of 6½ pounds. She looked well, and her physical signs were further improved, but she still coughed occasionally. She was advised to use the inhaler at night and for six hours daily for three weeks longer; at the end of this time to return to work and practise inhalation three hours every evening and at night.

CASE 44.—The patient, aged 28 years, was brought by Dr. J. L. Forrest of Terrington St. John, Wisbech, on March 23rd, 1910. Four years ago he had pleurisy on the left side. Cough since December, 1909. "Influenza" in February, 1910, after which his cough became worse, and he brought up sputum; this had been found to contain "a considerable number" of tubercle-bacilli. He was very depressed and thought that as he was consumptive he must certainly die. His normal weight was 10 st. 12 lb., but he now weighed only 10 st. 1 lb. Dullness at all four apices (large areas at the right upper and lower apices and at the left lower) and four lower areas. Air-entry practically absent over the dull apices; slight crepitus here and there, but no sign of cavitation. He was advised to remain in bed for two weeks and to practise continuous antiseptic inhalation, and was reassured as to his prospects of recovery. On April 23rd Dr. Forrest wrote: "He is much improved; he put on 7 pounds weight in three weeks, and says he now feels very fit indeed. For ten days the temperature was 99° F. in the evening; now it never exceeds 98·6° in the evening and is 98° in the morning. Cough and expectoration now very slight." On May 4th Dr. Forrest reported: "He had a slight rigor two days ago and the temperature rose to over 100°, so he is to be kept in bed a few days. Sputum examined again; report states that tubercle-bacilli are fewer than six weeks ago." I saw him a second time on May 18th, when I found that he had gained 12½ pounds in eight weeks, all his dull areas were smaller, there was now good air-entry everywhere, but there were some indications of cavitation at the right upper and lower apices (where the largest dull areas were situated). He was advised to use the inhaler not less than six hours daily, and, if possible, at night. He acted on this advice, and when he presented himself for the third time on August 17th I found that in the three months he had gained 2 pounds more (total gain 14½ pounds), that he felt better, and could do more work without fatigue. He complained that his cough was still troublesome for periods of about four days at intervals of about three weeks, and that at these times he brought up yellowish sputum. His dull areas were all much smaller, and the cavities slowly contracting; no active signs. He was advised to persevere. His weight was now 11 st. 1½ lb.

CASE 45.—The patient, a boy, aged 6½ years, was seen at his home in consultation with Dr. J. E. B. Wells of Hoddesdon on April 10th, 1910. At the age of only 11 months a mass of tuberculous glands pressing on the trachea had been removed by operation. He was "a delicate, bright, intelligent child with very carious teeth, poor appetite, cough (worse at night), an evening rise of temperature (which has been twice

followed by profuse sweating), and a morning fall of about 2° F. The sputum has been examined; it contains no bacilli." A linear scar was present on the left side of his neck. A few small cervical glands could be felt. Dullness existed at the left apex in front and at all the characteristic areas posteriorly. Some crepitus could be heard in the left upper lobe and at the angle of the left scapula. The abdomen was normal. It was advised that he should be persuaded to wear a Yeo's inhaler and to practise continuous antiseptic inhalation for a month. On April 28th Dr. Wells wrote that the boy had taken kindly to the inhaler and that he had greatly improved. "Temperature nearly constantly normal for three days; eating well and putting on flesh. The cough is gone, as well as the sweating at night." Three months later (August 9th) he was brought to my house on his way home from Margate, where he had spent ten weeks, and had had no cough during the whole of this time. The characteristic small areas of dullness could still be demonstrated (including now the right apex also), but no morbid sounds.

CASE 46.—The patient, aged 30 years, unmarried, was seen on April 12th, 1910. She had given much time to athletic sports (tennis, hockey, and golf), and won prizes and championships. In 1908 she had influenza and some months later she was found to have dilatation of the heart. This was treated by baths and exercises and recovery followed. She had had a cough for more than a year, and frequently brought up a small amount of sputum, which was often slightly blood-stained. For several months her evening temperature had been 99° F. The sputum had twice been examined for bacilli but none were found. Her weight now was 8 st.; she once weighed 8 st. 9 lb. She thought that she had lost half a stone this winter. Dullness was present at all four apices and some lower areas. Air-entry at apices poor, and slight crepitus could be heard here and there, and at one spot a little prolongation of expiration, but no audible whisper. She was advised to remain in bed for two weeks and to practise continuous antiseptic inhalation. On May 4th she had gained 6 pounds in three weeks, looked and felt better. Her temperature, which had been 99·6° F. at first, gradually fell, and for three days had been normal. Cough better, dull areas smaller, air-entry more free, still a little crepitus. On her way home she caught cold from draughts in the train on a cold day, and her temperature rose to 99°. Yet on June 8th she was still improving, and had gained 4 pounds in weight in five weeks. Total gain, 10 pounds; present weight, 8 st. 10 lb.

CASE 47.—The patient, aged 21 years, was seen at a nursing home in Devonshire-street in consultation with my colleague, Mr. V. Warren Low, F.R.C.S., on April 28th, 1910. He had been admitted into the home under the care of Mr. Low two days before on account of a tuberculous knee, for which he had been under treatment for a considerable period in a large town in the Midlands, and the opinion had been finally expressed by a well-known surgeon that amputation was the only course by which life could be saved. For 11 months he had also suffered from cough, and for the last six weeks the cough had been very distressing. He brought up a copious expectoration, chiefly mucoid. Temperature 102° F. on his admission; it rose to 103°, and was now 101·8°. The right knee was much enlarged and tensely swollen, and was very painful. His cough was frequent, and whenever he coughed an expression of pain was seen on his face, the inflamed knee being jarred by the effort of coughing. His condition was, indeed, most distressing, but Mr. Low had been able to give some relief by the application of a von Bier's elastic bandage round the upper part of the thigh. The patient's condition made it difficult to examine his lungs accurately, but I found that he had large dull areas at all four apices and some lower areas. Crepitus could be heard especially at the lower apices, but no definite evidence of cavitation. It was advised that he should practise continuous antiseptic inhalation, and be fed freely with milk and malted milk, while the treatment by repeated applications of the elastic bandage (which always gave relief) was continued. Mr. Low and I agreed that in his present condition amputation would be fatal. Under the use of the inhaler the cough was at once relieved, and it almost disappeared within a few days. His knee progressively improved, and after a month (May 24th) he was sent back home with the leg on a splint, and his medical man was requested to continue the employment of the elastic bandage three times a day. In July a little pus was found to be exuding from the outer side of the knee, and a consulting surgeon was called in. His opinion was that the joint was disorganised and full of pus, and that immediate excision or amputation was necessary. Arrangements were to be made for the operation on the next day, but the patient refused to allow anyone but Mr. Low to operate on the joint, so his father brought him up again to the nursing home in Devonshire-street. Here his temperature was found to be 98·6° F., and the chart showed a subnormal temperature during the whole of the last week, including the day on which the surgical opinion was given. The knee was obviously much smaller than in April, it was not tense, or painful, or tender. The small discharging cavity was examined with a probe and found to be separated from the joint. Mr. Low was of opinion that suppuration had occurred in a bursa about the head of the fibula. The patient's general appearance was greatly improved, he was stouter in the face and looked happy and smiling, he was free from pain and had hardly any cough. I found that all his dull areas were much smaller, that there was poor air-entry and slight crepitus at his right apex, and some suspicion of cavitation at his left apex, while the crepitus at his lower apices had disappeared.

On Oct. 16th Mr. Low kindly informed me that this patient is still progressing satisfactorily, that he has no cough at all, and that his temperature has been normal for several months.

CASE 48.—The patient, aged 29 years, was sent by Dr. T. Gash of Rochester on May 17th, 1910. Five years ago he suffered from "pneumonia"; he was in bed for six weeks, and was "tapped twice," a pint of *clear* fluid being withdrawn on each occasion. It can hardly be doubted that this was really a tuberculous attack. In July, 1909, he had "influenza," and Dr. Gash detected evidence of tuberculosis of the lungs and prescribed treatment by continuous antiseptic inhalation in accordance with the recommendation in my paper. (His weight was then 9 st. 13 lb.) He had accordingly used the inhaler for 17–18 hours a day for four and a half weeks. More than a year ago he lost his first child at the age of 11 months from "meningitis." The second baby is now dying from "tuberculous mediastinal glands"; the glands under the jaw were first affected. When I examined this patient he had already gained 4½ pounds in weight. The dull areas in his lungs were very extensive, and there appeared to be cavities at both apices and also at the left lower apex. On June 11th, 1910, he had gained 4½ pounds more, his dull areas were smaller, and his cavities drier; very little crepitus now audible. Hardly any cough. By his own desire he now spent three weeks in Crooksbury Sanatorium, under the care of Dr. F. R. Walters, who kindly permitted him to wear his inhaler for 15 hours every day. On July 11th there was a further gain of 2½ pounds and a further improvement in his physical signs. On Oct. 6th it was found that the cavities were practically healed and very little abnormal sound was heard. Cough and sputum very slight. Total gain in weight 12 pounds. He had not used the inhaler for a month and could do a day's work on his farm without much fatigue.

CASE 49.—A patient, aged 26 years, of Dr. E. B. Randall of Forest Gate, was sent to me on May 23rd, 1910, by a previous patient (Case 38). Dr. Randall wrote: "Her brother, aged 23, died of phthisis six months ago, and she has had a cold and cough on and off since, but came to me with a fresh cold in March, and her cough has continued; there are tubercle-bacilli in her sputum." Her weight was 7 st. 9½ lb. There were rather large dull areas, with double crepitus at the right apex, and inspiratory crepitus at the left. Under treatment by continuous antiseptic inhalation her cough diminished quickly and the sputum became much less. On June 13th she had gained 5 pounds in three weeks, all the dull areas were smaller, much less crepitus was heard, but there were indications of a small cavity at the right apex. She continued to use the inhaler at night and more than eight hours in the daytime. On July 11th she stated that the cough and sputum had nearly disappeared, and there was a further gain of 5 pounds. The physical signs showed further improvement. On Sept. 27th she had gained 6 pounds more, making a total gain of 16 pounds; her weight was now 8 st. 11½ lb. She had had no cough and no sputum for several weeks. Had walked eight miles without fatigue. Had a good colour. Felt and looked exceedingly well. She was full of gratitude for her recovery and said, "I feel I want to tell everybody about it!" She was still in mourning for the brother who had died from the same disease.

CASE 50.—The patient, aged 22 years, was seen at her home in consultation with Dr. H. Tipping of Palmer's Green, on June 7th, 1910. Her cough began in November, 1909, and she was then found to have tubercle bacilli in her sputum. She progressed fairly until four weeks ago, when the cough became worse. She had lost over 7 pounds in weight, had vomited after coughing, and her temperature had been of hectic type—99° to 100° F. in the morning and 102° (twice 103°) in the evening. During the last eight days she had practised continuous antiseptic inhalation, but had renewed the solution on the inhaler only three or four times in the 24 hours; yet the cough had ceased while she wore it. She was found to have rather large areas of dullness, with crepitus, at all four apices, and other dull areas, but no sign of cavitation. She was advised to continue the treatment and to renew the solution on the inhaler regularly every hour during the daytime. I have not seen this patient again, but Dr. Tipping informed me that gradual improvement followed. In about 10 days the temperature fell to 98°–99° (morning) and 100° (evening). Signs of a small cavity developed at the right apex. On July 14th hæmoptysis occurred and lasted for 48 hours, and on the 17th again for 32 hours, then it ceased. Absolute rest was advised. In September Dr. Tipping wrote that she had continued to improve, her lung condition showed an "all-round improvement," but a cavity was still present. She was now walking about quietly. In October she "continues to improve, her weight is increasing; she coughs only at night and in the morning. Is doing light house-work."

The 30 cases reported in my first paper were all incipient or comparatively early cases, though three or four of them were very acute and rapidly advancing when the treatment was instituted. In every one of these 30 cases the result is highly satisfactory. Some of the 20 additional cases now reported came under treatment at a much later stage of the disease or were attended with grave complications. In such instances recovery must be comparatively slow, and the final issue may be doubtful. Any case of pulmonary tuberculosis, if allowed to progress unchecked for many months, may easily reach a condition which is incurable by any form of treatment. But my contention in these two papers is that this ought never to be allowed to happen. Pulmonary tuberculosis is recognisable and ought to be discovered before there is any breaking down of lung tissue. To suspend the diagnosis until tubercle bacilli are detected in the sputum is like delaying the diagnosis of cancer until the glands are involved.

Weymouth-street, W.

HASTINGS WATER-SUPPLY.—The very important question of the water-supply is again before the ratepayers of the borough of Hastings. In February last a majority of 4792 in a poll of 5908 decided against a Bill which the council proposed to take to Parliament, but whereas that Bill included other schemes in addition to the water clauses the present Bill applies only to the Crowhurst valley waterworks, and seeks the usual powers for the purpose of improving and increasing the water-supply. The town council has adopted the Bill by the requisite majority, realising as it does the importance of the matter to the people of Hastings. The demand now exceeds the supply; the storage reservoirs only hold three days' supply, and the works do not possess duplicate machinery. Even if the present Bill is carried through Parliament the year 1915 will be here before the town possesses an additional supply of water.

ON FRACTURES IN THE NEIGHBOURHOOD OF JOINTS.[1]

BY ROBERT JONES, F.R.C.S. EDIN., CH.M. LIVERP.,
HONORARY SURGEON TO THE LIVERPOOL COUNTRY HOSPITAL FOR CHILDREN AND THE ROYAL SOUTHERN HOSPITAL; LECTURER ON ORTHOPÆDIC SURGERY, LIVERPOOL UNIVERSITY.

THE subject selected for this discussion is the management of certain fractures in the immediate neighbourhood of joints. In opening the discussion my remarks will be of a strictly clinical nature and will be based very largely on personal experience and practice. It is a common observation that until quite recently the subject of fractures has remained obscured by reason of the rapid progress made in other departments of our art, and the attraction they prove to most of our able colleagues. Indeed, it is scarcely an exaggeration to say that in many of our hospitals the treatment of a broken bone is left from first to last in the hands of a junior house surgeon. Such delegation of responsibility is often doubtless justified, but I am afraid the house surgeon himself sometimes feels that he is dealing with a comparatively unimportant branch of his art—a feeling engendered by the seeming indifference of his chief.

It is due largely to the brilliant and earnest work of Arbuthnot Lane that our attention has been re-awakened in this subject, and whether we are in agreement with him or not, we must all feel that his strenuous advocacy of his methods has been productive of much that is good.

Every general practitioner is supposed to be able to treat a fracture, but there is now a tendency for our students to be taught to rely too much upon a radiograph for diagnosis; the result of this must mean disaster, and will in some measure account for many stiff and useless joints which so often confront us. The correct interpretation of an X ray photograph amply repays study, but it involves a long and patient education. The radiograph should be used as a court of appeal only after a diagnosis has been attempted, and should not be made to deprive the student of his powers of clinical observation. I would prefer to have a bone skilfully plated in any part of my body by a truly aseptic surgeon rather than that it should be left in the hands of a surgeon, however able, who would treat it in direct violation of mechanical and physiological principles. There really should not exist two schools, one operative and the other mechanical. Each surgeon should decide for himself whether in a particular case an operation should be performed or not, and the way a successful result will be achieved will depend largely upon his special ability. The word "unjustifiable" should be rigorously excluded from our vocabulary when we deal with practices which differ from our own.

During the last 25 years I have treated an unusually large number of fractures involving the function of joints, a goodly proportion of which were not recent and involved disability or deformity, or both. The mere appearance of a joint does not seriously distress a patient; disability invariably does. From the patient's point of view impairment of function is a much more serious deformity than any mere outward change of shape.

I regard every case of fracture as the potential cause of disability, and am still learning from my own mistakes (and sometimes from those of others) certain fundamental rules for clinical guidance. It is necessary, for instance, that we should recognise the importance of Wolff's law, "that the internal structure of bone and then its outward appearance are adapted to the strains to which it is subjected and to the function it performs, and that the structure varies to meet alterations both in strain and function." Normal bone, in fact, is structurally fortified at that point where most work is required of it. By deflecting strain to another part, the structure is correspondingly strengthened there and weakened where it is no longer wanted. The "pathogenesis of deformities is therefore functional." It is therefore necessary in all fractures about joints clearly to appreciate the mechanical function of the joint. What is required is a knowledge not so much of its mere anatomy as of its movements and the directions of the normal lines of strain during muscular exercise.

[1] A paper read before the Surgical Section of the Royal Society of Medicine on Nov. 8th, 1910.

Again, a study should be made of the common disabilities which accompany so-called neglected fractures about joints. In fractures about the shoulder they are deficient abduction and rotation; in the hip, a diminished range of internal rotation, of abduction, and often of extension; in the elbow, fixation at an angle usually of about 130°; in the knee, genu valgum and sometimes flexion. The special deformities or disabilities peculiar to each injury should be studied, anticipated, and avoided.

In case some impairment of function should be feared we should know what particular movement and position of the joint it is most important to preserve, and we should direct the treatment accordingly. As an example I will take the case of a fractured scaphoid. This accident, as we know, occurs very much in the same way as a Colles's fracture. The neck of the scaphoid is usually fractured at its narrow part by a cross strain due to a fall on the hand, which is held more pronated than when a Colles's is produced. The diagnosis even in an early stage is not difficult. Added to the general signs of a sprained wrist there is marked tenderness to slight pressure in the anatomical snuff-box. If such a case is seen early and the wrist be hyper-extended, and be kept in that position for about 14 days, an excellent functional result may be assured. If, on the contrary, it be sent to a masseur with a bias towards strenuous passive movement, a thickened wrist with marked limitation in movement will probably ensue. To those of us who have seen old cases of fracture of the scaphoid the explanation is simple. The main disability consists in a loss of the power of extension. We therefore at once secure our right of way by hyper-extending and fixing the wrist in hyper-extension. The displacement usually occurs during some movement of the hand, and the vigorous masseur often produces displacement of the fragment and traumatic arthritis by exercising his art injudiciously. Again, in the old neglected case of fractured scaphoid or other carpal bone, where the patient appears with a stiff and somewhat flexed wrist, I often apply a club-foot wrench (plate) and fix the hand in hyper-extension. This restores to the patient his firm power of grip which we all lose when our wrist is flexed. I shall have a word or two to say later on the operative treatment of fracture of the scaphoid, but for the moment I am illustrating the value of obviating disability by the anticipation of subsequent events.

Again, as the result of long experience I have formed very definite opinions as to the relative value of passive and active movements, and as these are not quite in accord with prevailing views I will explain them later.

Finally, mere æsthetic considerations of appearance should always be subordinate to questions of restoration of function. In recognition of this principle I always endeavour to preserve a clear right of way free from obstruction by fragments of bone and callus, so that movements of the joint are not impeded, and furthermore to preserve the alignment of bones so that the lines of stress shall fall normally across the joint.

In teaching I constantly emphasise the important rôle of a correct alignment, particularly in the case of the lower limbs. At the ankle-joint it is essential to a good recovery. In fractures about the condyle of the femur it is almost of equal concern. Any deviation from correct alignment means alteration in structure in accordance with Wolff's law—an effort made by Nature to adapt the parts to the deviated lines of muscular stress or to the deviated lines of the force of gravity. These deviations may produce changes identical with those of traumatic osteo-arthritis. A faulty alignment, whether there be end-to-end apposition or not, means erroneous deflection of body weight, a cross straining of the fracture and a stretching of certain structures in the joints which lie above and below the fracture.

I shall scarcely refer to the question of splints. The splint is only a small practical detail compared with the method in which it is used. Inflexible fixation by wire or plate, fixation by splint and bandage, or no fixation, may each be simply good or bad. A surgeon may succeed or fail in any or all of the three methods according as he has or lacks the necessary knowledge and skill. If he has not a clear idea of the precise mechanical effect he wishes to obtain, neither splints, plates, nor massage will avail him.

UPPER EXTREMITIES.

Shoulder.—Coming to definite injuries, I will briefly allude to the so-called fracture of the anatomical neck of the humerus, which most often occurs in old people. It is not always a

genuine fracture through the anatomical neck, but includes both tuberosities in the upper fragment. It is very often impacted, and never requires more by way of treatment than is afforded by a sling and a modest axillary pad. Gentle rubbing may be continued from the time of the accident, but no passive movements should be permitted within less than from two to three weeks. At the end of six weeks the patient usually recovers with an excellent range of movement—a range which allows him to button the back of his collar and reach his brace from behind.

Fracture of the surgical neck requires more care. The head is usually rotated upwards and outwards by muscular action, and if there be much displacement a pull in the abducted direction will elicit crepitus. The ends should be manipulated under extension until a sufficient interlocking occurs so that the head responds to every movement at the elbow. When this is secure the elbow should be pushed towards the shoulder so as to compress the fractured ends, and the arm should be brought down to the side and there fixed for a few days by pad and bandage. At the end of a week it will be found that the spasm of the scapular muscles has passed off and treatment can be continued as in the higher fracture by pad, sling, and bandage.

One of the most common complications of fractures of the upper humerus is dislocation of the head. I have no less than 40 X ray photographs of this condition. I have had the opportunity of seeing the case immediately at the time of accident on several occasions, but more frequently I have not seen them till a later stage. Manipulation should be tried first while the structures are relaxed, and if this fail the arm should be extended perpendicularly while the surgeon manipulates the head. This manœuvre I have found the most successful, and X ray photographs exhibit very clearly the range of movement which followed a reduction by this method where I was assisted by my colleague, Mr. Newbolt. The patient was an old gentleman aged 74, a huge muscular man, and he now possesses an extremely useful shoulder. In a recent case failure to reduce by manipulation should be followed by open operation to replace loose ends. An excellent device to secure this object is that of McBurney, who introduces a hook through a drill hole in the lower end of the dislocated head, whereby, with but little handling of the parts, reduction is effected. The removal of the fragment is always indicated in old cases where nerve or artery is involved. I have been most interested to note the free range of movement which often follows these cases even when neglected. Good rotation inwards and fair abduction have been present in spite of the great deformity.

Elbow.—Fractures about the elbow-joint in children are the source of much trouble to the practitioner, and we have all seen cases of fractures through or above the condyles in which stiffness and limitation of movement have resulted in spite of the most assiduous passive movements begun early and continued late. Medical men have often consulted me with almost the identical story. They say: "For the first week I have treated this supracondylar fracture in exactly the position you advise; the movement seemed quite good and we have regularly applied passive movements once or twice every day and kept the arm at right angles. Instead of becoming more slack this stiff arm is the result." They are astonished when they hear that the stiffness is probably the direct result of passive movement, and that if the arm be slung up and left alone movement will return again. A patient some years ago brought her boy to me with a stiff elbow following a fracture of the epicondyle. Her story was that six weeks previously Dr. A had placed the child's arm in a sling and a week later went for his holiday. The child was then transferred to Dr. B, who immediately began a vigorous campaign of passive movement. Several times a day the arm was flexed, pronated, supinated, and extended, and the ever-growing stiffness was a further stimulus to action. When I saw the child he had a stiff, painful elbow, and the mother, full of indignation, threatened Dr. A with penalties. Dr. B, who was really the unintentional offender, received nothing but praise for his energetic care. I explained to her that both men had done their best and that a third stage of treatment was still needed. The arm was slung up at an acute angle for a fortnight and gradually dropped to a right angle, when active, not passive, movements were allowed, and in less than a month a very considerable range was obtained.

I will now for a moment explain my views as to the erroneous teaching in regard to passive movements. While nothing but good results from early and gentle massage in recent fractures, provided it be applied without moving the parts, great harm often results from combining passive movements with massage at a very early stage of treatment.

I will illustrate this by a case of supracondylar fracture. Such a case, treated either with an angular splint or in the straight position, very often results in limited movement confined in area from the right angle to midway to extension. This is due to faulty alignment, to the obstructive effect of excessive callus exudation in front of the elbow, or to a projection there of the upper fragment of the humerus. The object of the surgeon being to prevent this, he corrects the faulty alignment by acutely flexing the elbow and at the same time secures a right of way before he is opposed by callus exudation. To do this he supinates, then acutely flexes the elbow. For some days it is left in this position and then transferred to a sling, the wrist being kept immediately below the chin. At the end of a fortnight the wrist is dropped two or three inches and the patient is allowed to move the wrist from its resting place back to the chin. If this can be done it may be lowered still further a few days later; if, however, it has stiffened in its new position it requires again to be slung in the more acutely flexed position. At the end of three weeks passive movements may be begun. They should consist of only one movement in each direction (pronation, supination, flexion, and partial extension), and then the arm should be replaced in a sling. This passive movement should be slowly and gently done, the fracture being protected from strain by the surgeon's hand. During the whole of this period massage can be harmlessly and even beneficially practised. Early passive movement, such as is so generally practised, is positively harmful; it disturbs the uniting fragments of bone and leads to fresh plastic effusion, excess of callus, and increased formation of connective tissue about the joint, all of which are conducive to increased stiffness. The oft-repeated to-and-fro movements only do so much daily damage, and no time is given for recovery before a fresh injury is inflicted. I never move such an elbow until I am satisfied that the union is not likely to be disturbed. This is true of all joints. They should be put through each of their movements once and then left to recover from the damage. In one, two, or three days each movement is again repeated, but only once. Passive movements thus applied are comparatively painless and are not followed by rebellious reaction, which is always an indication for continued rest.

Since I have employed the acutely flexed position elbows have ceased to be troublesome. It is very rare to have anything but an excellent result. In the old-standing cases with disability which come to me even now the story usually relates to rectangular splints, pads, bandages, and early movement. The deformities—whether the result of supracondylar fractures, separation and rotation of condyle, or backward dislocation with fracture of the coronoid—are almost always the same. In supracondylar fracture the prominent lower end of the shaft, assisted by new bone, blocks the way to flexion. In separation of the condyle the same kind of obstruction occurs. Callus exudates, bony displacements, and organised effusions oppose flexion, whether the arms are treated by splints in the straight or in the rectangular position.

For over 20 years I have instructed my house surgeons in all cases of fracture and dislocation about the elbow (with the exception of fracture of the olecranon, always easily diagnosed) first to supinate and then acutely to flex the elbow and to fix it in this position. If this advice were generally followed disability would be a rare instead of, as it is, a frequent sequel.

An X-ray screen will demonstrate the effective reduction of the backward dislodgment of the lower fragment in supracondylar fracture. It has been suggested by certain writers who follow this method in separation of the condyles and supracondyloid fractures that the acutely flexed position is liable to produce a forward displacement of the epiphysis. Even if this be so, no harm can come of it, for callus exudation cannot prove obstructive beneath the triceps, and there will be no sharp prominence of the lower end of the shaft to limit flexion.

If the forearm be dislocated backwards we must extend

and supinate and acutely flex, for in this way only can we reduce the dislocation; and should we be unable to flex the arm we may rest assured by such failure that the displacement still remains. If the radius is dislocated forward and inward a similar routine is effective; the supination and extension will reduce the luxation, while acute flexion will maintain the parts in position. If the fracture be intercondyloid the position of acute flexion has this advantage—that it secures for the forearm at once a right of way before exudation of callus and displaced condyles can prove obstructive. It is true that in this particular injury some widening of the condyles is apt to occur when the arm is flexed. The parents should be warned of this, and a very effective way is to ask them which they prefer, an artistic-looking or a mobile elbow. This saves all future complication. Should the injury be separation of the internal epicondyle, there can be no better way to keep it from the common downward displacement than by acute flexion, which relaxes the muscles arising from it.

An interesting and common fracture is that of the head of the radius. It is usually vertical, and occurs within the orbicular ligament. Like all fractures of the upper part of the radius, there is muscular spasm on attempts at supination. There is usually no crepitus, but always distinct pain on direct pressure. In such a case, if supination is obstructed, immediate exsection of the fractured piece is the best treatment. The rough edges should be trimmed, and in order to lessen callus formation, the bare cancellous tissue should be well compressed by means of a smooth steel implement. If the fracture be below the orbicular ligament crepitus is usually obtained, and full supination is effectively secured by the close approximation of the forearm upon the arm.

Fracture of the olecranon I treat by maintaining the arm in the straight position, and, if the line of fracture is transverse and the fragments well apart, I fix the fragments with screw or wire. In oblique or stellate fracture I do not operate. In fractures below the olecranon in the upper ulnar third I have sometimes employed Lane's plates.

I have met with fracture of the coronoid (plate) on several occasions, although recent writers doubt its occurrence. Traumatic myositis ossificans followed this injury in one instance, and this ossific complication is much more frequent than reports would suggest. I have between 40 and 50 radiographs of the condition, and will show you a series of four skiagrams of the same case marking the progress of the disease from the beginning to the end. I have been unsuccessful in my attack upon this disease, as in several instances after operation fresh accumulations of bone have occurred.

Before leaving the subject of injuries to the elbow I would allude to the treatment of old cases of many weeks' or months' duration which come with deformity and disability. The gunstock deformity if extreme can be remedied by supracondylar osteotomy. As a rule, however, no disability accompanies this deformity and operation can only be justified on æsthetic grounds. A far more important class is that where flexion is blocked, and both in old condylar and supracondylar fractures and in old dislocations very useful joints can often be secured. The patient is placed under an anæsthetic and the arm is forcibly flexed until, in spite of all opposition, acute flexion is attained. Mr. H. O. Thomas 20 years ago suggested this in the case of old dislocations of the elbow. It is equally successful in fracture dislocations. By way of illustration we will take the case of a fracture dislocation of some months' standing. We find the elbow at an obtuse angle with about 20 degrees of movement. At anæsthetic is administered and the arm is slowly but forcibly flexed. If this can be done safely at one sitting all the better. Often, however, it is only possible to flex it about 20 or 30 degrees without risk of fracture. The arm is securely slung at the acutest obtainable angle, and in two or three days another effort is made. It is interesting to note that by that time one can quite easily flex it several more degrees. In the most obstinate cases it is not necessary to reduce in more than three stages. It is then slung up for a fortnight and gradually lowered, as I have explained before. In the most unlikely cases a good range of movement often results, and it is well worthy of trial before excision of the joint is decided upon.

Wrist.—I have no new light to throw upon the much-discussed Colles's fracture, and can only very confidently assert my belief in the efficacy of complete reduction. Often no serious effort is made to obliterate deformity, and in no region can one conceive of a greater necessity for it, for exuberant callus must terribly handicap the tendons, both dorsal and palmar.

The text-books still describe the hand-shaking method of reduction with extension, flexion, and ulnar flexion. This indirect method of applying corrective force through a chain of small bones will not appeal to any of us who are in the habit of using the tubercle of our own scaphoid as a fulcrum in forcible manipulations, such as osteoclasis and manual wrenchings. I reduce a Colles's fracture in the following manner. The surgeon with his left hand palm upwards grasps the patient's left arm, placing the tubercle of his own scaphoid against the projecting lower end of the upper fragment; he then places his right hand palm downwards with the tuberosity of the scaphoid on the upper edge of the lower fragment, when, by a forcible pressure, the fragments are powerfully replaced in position and crepitus is often felt. If the reduction be complete the patient can at once move his fingers with less difficulty than before. In old cases of many weeks' standing, when deformity, marked disability, and sometimes pain exists, I place a Thomas's wrench on the lower end of the radius and forcibly reduce the deformity, usually without difficulty. Daily massage, splints for 14 days, and passive movements later, of the kind already described, are the indications in these old neglected cases. In the recent case, early massage, fixation for three weeks, then passive movements, will always result in a mobile hand and wrist. I now experience no difficulties with my cases of Colles's fracture when I treat them in the first instance. The chief cause of stiffness of fingers and wrist is the unreduced backward displacement of the lower fragment, which impedes the action of the extensor tendons while the same displacement interferes with full supination.

I have already referred to fractures of the scaphoid. The method of reduction I adopt is to flex the wrist acutely and place firm pressure on the dorsal fragment, then completely hyper-extend the joint. If this effect cannot be attained, the prominent piece, or even the whole bone, should be excised. The excision is much more successful if performed immediately rather than later. In the old neglected case where the power of grasp is diminished because extension at the wrist is limited, the wrist should be fixed in hyper-extension, even, if necessary, by the aid of the wrench.

LOWER EXTREMITIES.

The hip.—I will only deal with two types of fracture connected with the hip, the one associated with the young and the other with the old. The adolescent fracture is much more common than is generally appreciated, and is productive of the deformity known as traumatic coxa vara. It consists of a partial or complete separation at the epiphysis of the head, a fracture through the neck, or a fracture involving both neck and epiphysis. I will describe for clinical purposes a typical case of separation or partial separation due to a comparatively slight strain. It is of all injuries to the hip the most often overlooked, even by extremely good surgeons; it is furthermore often a serious matter for both the patient and surgeon if an early diagnosis be not made. A boy of perhaps 12 or 14 while playing football attempts to turn suddenly and feels a sharp pain and a disability in his hip. He hobbles off the field and after resting a short time walks back to school and rests. The surgeon is sent for and makes his examination. He finds the movements fairly free in the direction of flexion and extension and adduction; the rotations are distinctly painful, and abduction beyond a short range is not tolerated. The measurements of the limb are normal. Ten days or a fortnight's enforced idleness and the little patient is back to the playground, when simple games are proceeded with. In days or weeks another strain occurs, and further disability, with symptoms no more diagnostic than before. Games are prohibited for the rest of the term, and one day something gives in the hip and he has to be helped to his bed. There may be now a half- or three-quarter inch of shortening, and on examination a separation of the epiphysis, partial or complete, will be found. The case I have given is one I am very familiar with, and it is generally diagnosed as a sprain or as a synovitis. The X ray

photograph shows the femoral head in position and the femoral neck travelling upwards.

In another type the injury is much more severe, the disability more pronounced and lasting, and we find we are dealing either with a fracture of the neck or with a complete separation of the head.

There is a third type which completes the clinical group. A youth slightly injures his hip and is incommoded, hardly disabled, for a day or two. As the weeks pass he complains of an increasing lameness and stiffness at the hip. His symptoms are very much those of a starting hip affection. There is limitation of movement in all directions, shortening of the limb, elevation of the trochanter above Nélaton's line. The X ray shows a coxa vara of the epiphyseal type. The slight injury has partly torn the periosteum and separated the epiphysis, and under the strain of body weight the characteristic deformity occurs. (*a*) From the clinical side I would suggest that a single strain or a succession of strains of the hip-joint in adolescents if followed by disability and pain on abduction denotes an epiphyseal separation. (*b*) If strain completely disables the patient and is accompanied by elevation of the trochanter a fracture of the neck is to be diagnosed. (*c*) If a slight injury is followed by a limp, rigidity, and shortening of the limb we are probably dealing with a coxa vara following a partial epiphyseal separation, but exhibiting signs of traumatic epiphysitis. We must remember that a neglected traumatic coxa vara results in a stiff, adducted, and slightly flexed hip.

The treatment should consist of immediate fixation with extension and extreme abduction. By this means the sliding head or fractured neck is placed in its proper relation with the shaft. Under an anæsthetic the pelvis is fixed while the limb is abducted, so that the upper border of the acetabulum acts as a fulcrum. The patient is then fixed in plaster or, as I prefer, in an abduction frame until consolidation has occurred—probably for about six weeks.

Lest we have to deal with a softened femoral neck a simple calliper splint should be worn for some time, so devised and fitted that no strain upon the yielding femur is allowed while the patient walks.

In fracture of the neck of the femur in the old, several problems confront us, more especially in regard to nursing and in regard to the dangers of pulmonary complications. I am convinced, however, that quite a large proportion of cases, under appropriate mechanical control, make excellent recoveries with but little shortening and comparatively negligible disability.

An interesting question arises in cases of impacted fracture of the neck. Owing to the fact that there may be no shortening, practitioners sometimes hesitate to diagnose a fracture. The presence of external rotation and tenderness about the neck of the femur is sufficient to my mind to determine a diagnosis.

Opinion varies as to the propriety of disimpacting the fracture in those cases. I make a practice of disimpacting in every case where there is any shortening or external rotation of the limb, leaving only those cases in which there is no rotation and little or no shortening. It must be remembered that a patient with an impacted fracture can often lift the limb from the bed, though with more or less pain, and sometimes a correct diagnosis is only arrived at when spontaneous disimpaction occurs two or three weeks after the injury and a consultation is called for It is necessary to emphasise this statement as most authors insist that in no case of fracture of the neck can the limb be lifted from the bed. Cotton, in the latest work published, states, "Uniformly there is inability to raise the leg from the bed," but in a footnote he adds, "I have seen one exception to this rule."

Provided a case is one suited for complete mechanical treatment—i.e., that there exists no condition which renders the recumbent position inadvisable—I endeavour to secure immobilisation and apposition. This can only be done by fixation of the limb in the position of adduction with fixed rather than elastic traction. With elastic traction such as the weight and pulley there must be a sliding of fragments one upon the other when the muscles relax in sleep and on awakening. Liston's long splint and perineal bandage was an attempt to keep the joint at rest. Extension by weight and pulley sought the same end. Fixation by plaster is an advance on either of these plans, but has obvious disadvantages. The splint we use in Liverpool is a modification of the double Thomas's frame, so devised that adduction can be maintained at any desired angle. By its use starting pains never occur, for the pelvis, lower extremity, and splint are all firmly fixed together, and movements of the patient do not alter the tension in relation to the fracture. The patient and the frame are lifted together without in any way disturbing the fracture, and both the frame and patient can be carried together without divorcing the one from the other. This rigidity at the seat of fracture favours repair with a minimum of friction, and thus frees the joint from embarrassing obstacles. In six weeks a Thomas's knee bed-splint is applied with extensions, and passive movement on the lines already indicated are adopted, safeguarded by the splint against a slipping upwards of the femur. A fortnight later and the patient walks in a calliper, so that walking is permitted with no weight-bearing strain on the fracture. During the whole of this time massage is assiduously practised.

In those cases where hypostatic congestion is threatened the patient is placed in a Thomas's knee splint with the limb adducted and she is allowed to be propped up if necessary even in the sitting position. In old cases of fracture with very limited movement and no signs of traumatic arthritis adhesions may be safely broken down under anæsthesia and mobility restored by massage. The greatest care should be exercised in the manipulations. By these methods patients are enabled to walk early without in any way interfering harmfully with the fractured neck.

Split fractures of the shaft of the femur involving the trochanter may need a couple of screws, but nailing the trochanter to the neck in fractures of the aged is undesirable, and many surgeons who have enthusiastically advocated this method are now abandoning it. Good adduction makes for correct alignment, and the trabeculæ of bone laid down in the callus as it becomes hard will follow the normal lines in response to the normal strains placed on the fracture.

The knee-joint.—I treat fractures of the lower end of the femur by means of traction in the line of the limb. This, in my opinion, is best secured by means of a Thomas's knee splint. The backward and downward rotation of the lower fragment due to contraction of the gastrocnemius is of slight importance compared with the effect of upward traction of the quadriceps and hamstrings. This is a doctrine I have taught for many years, and I am pleased to find my opinion confirmed by Cotton in his work just published. The overlapping which we often find depicted by the Roentgen screen is a sliding of the lower fragment in front of the upper fragment. This can always be rectified by powerful traction. From the classical description we would infer that the upper fragment invariably lies in front of the rotated lower fragment, but this is not true in every case. The use of a double inclined plane to neutralise the action of the gastrocnemius is based on a theory which is not found to be true in practice. Our procedure in femoral osteotomy is suggestive in this connexion. In the many thousands of these operations performed, how few surgeons have ever resorted to the double inclined plane? Energetic traction to overcome shortening is the secret of a successful result. The spasm of muscle in any part of the body is very transient and readily yields to pressure and extension. When functional disability results it is usually due to the interference with movements of the patella by the *forward* displacement of the upper fragment.

If there exists as a complication a condyloid separation the displacement may be manually rectified by extension aided by lateral pressure. I have never found it necessary to fix the fragments by nail or screw, although there can, of course, be no objection to this practice. A surgeon obviously must attain his best results by methods he trusts the most. Two conditions, however, are essential to success: (1) Freedom should be secured for movements of the knee; and (2) a correct alignment of hip, knee, and ankle.

Fracture of the internal tuberosity of the tibia is very apt to result in a genu valgum unless a perfect reduction is made. The sartorius, semitendinosus, gracilis, and the internal lateral ligament of the knee run across and support the fragment. If the knee be kept straight and these structures be kept tense they form a most excellent internal splint. The displacement is usually slightly backwards. I have treated a large number of these cases and the results are generally quite good, although sometimes there remains a weakness of the internal ligament. The fracture may be

caused by direct or indirect trauma—indeed, it is not unusual to meet with cases where the injury has occurred solely from lateral strain. If within the first few days one is unable to secure a level intra-articular fracture line, open replacement with nail fixation should be made. I have seen much disability in connexion with these fractures when they have been inefficiently treated.

I have had an exceptional experience in having seen three cases of long-standing fracture of the spine of the tibia, each accompanied by marked interference with function. In the one case, a man of about 40 years was thrown off a bicycle six months previously. He was laid up with severe effusion and was not able fully to extend his knee. When he consulted me, three months later, walking was difficult and recurring effusion took place, although attempts had been made under anæsthesia to straighten the limb by means of manipulation, splint, and bandage, but with no success. He remained unable to extend his knee by about 15°, and a X ray photograph showed a mass of bone in the centre of the joint. On opening the knee by the incision which I adopt for semilunars I came down upon the tibial spine, which was displaced backwards, carrying with it the anterior crucial ligament, but surrounded by a mass of fibrous tissue. I removed the bone, leaving enough adherent fibrous tissue to enable me to fix the anterior crucial. The result is a much stronger and more useful knee, which even yet cannot be fully extended. I cannot remember ever seeing a reference to this injury in literature. A similar case shows the fractured spine lying in front of the joint, preventing extension by purely mechanical means; full restoration of function followed its removal.

Avulsion of the tubercle of the tibia is by no means a rare accident, and I have found it most common between the ages of 12 and 16. It may occur, as in the case of the femoral head, by a single strain or by a series of strains, and it is very apt to be overlooked. The symptoms consist of pain on acute flexion and on pressure, but there is never a complete loss of voluntary extension. When we remember that the tubercle is sometimes part of the main epiphysis, from which a long protuberance descends, that sometimes there is a separate epiphysis and that only a part of the ligament is inserted into it, one can understand the rarity of a complete displacement. It is never necessary to pin this fracture, for in the recent case a pad and splint will completely rectify the trouble. Both in the recent and the older case, a hinge knee-cap limiting flexion is an admirable contrivance. Later the quadriceps must be vigorously massaged. In a few instances I have met with a good deal of thickening and tenderness following these injuries. They occur in those cases where no diagnosis has been made and where the joints have usually been subjected to movements and massage. A linear incision with a chisel into the tubercle in its longitudinal axis acts as a charm, and in a few weeks a disability of some years' standing may be rectified.

Ankle-joint.—A volume could be written upon injuries about the ankle-joint, but time will only allow me to refer (and that briefly) to a few of the more interesting fractures that call for special care.

An injury which I have several times met with is a split fracture of the outer portion of the lower and anterior articular surface of the tibia. A triangular piece in juxta-position to the fibula which may involve only the anterior and external surface of the bone is displaced slightly forwards. This fracture occurs as a separate entity, but is often found in conjunction with a Pott's fracture and sometimes in connexion with a fracture of the astragalus, and then this injury is associated with considerable violence. It is generally produced by a fall upon the foot, such as occurs in the act of jumping. Unless the foot is X rayed the injury is likely to be overlooked and the consequences are anything but pleasant. In the neglected case the patient is unable to flex his foot even to a right angle. He complains of constant pain over the flexure of the ankle, increased on pressure, and the foot has the appearance of being swollen above the instep. There is a pain which catches him across the front of the ankle in walking, just when he is about to change his weight on to the other foot; this is the main ground for complaint. There is a widening of the lower end of the tibia and a forward projection. Indeed, the deformity is suggestive of a displacement backwards of the foot, but a comparison of the heels will at once correct this mistake. The displacement of the fragment is always forwards. If the case be recent, sharp pain is experienced over the slightly prominent lower end of the tibia and the foot cannot be properly flexed. To reduce the fracture the foot should be fully extended, and while firm pressure is made upon the forward fragment the foot should be acutely flexed. If this position be maintained for a few days the deformity will not recur. If the foot cannot be acutely flexed the tendo Achillis should be divided, or if the case falls into sufficiently reliable hands a plate or screw may be applied. In old-standing cases removal of the obstructive bone is required. When operation is refused an addition should be made to the heel of the boot so that the prominent tibia is not subjected to pressure. Even experienced radiographers fail to recognise this condition in old cases, for all that is seen sometimes is a thickening and blurring from osteitis of the lower margin of the front of the tibia. I have described this interesting fracture at length for the benefit of those remote from X ray installations.

The same type of fall upon the foot produces a transverse fracture of the astragalus. The posterior half is displaced backwards and usually lies just in front of the Achilles tendon. The anterior portion may be displaced forwards, but more generally remains *in situ*. The surgeon may at once decide on the wisdom of immediate excision of the displaced half. If one portion of the astragalus remains in position it may be safely left there, and good movement with no shortening may be predicted. After a large experience of the horizontal fractures of the astragalus, both recent and remote, I am biased in favour of immediate removal of the bone. More especially is this the case where it is driven into the os calcis. I regard the mechanical treatment of fracture of the astragalus and os calcis in combination as very unsatisfactory.

I shall only say a few words about Pott's fracture. Although this injury has been a constant source of irritation to both surgeon and patient, I believe it to be very tractable to reasonable treatment. The material deformities in Pott's fractures are two—first, the well-known outward dislocation of the foot, which must be fully corrected; secondly, a less generally recognised slight backward displacement of the foot. Failure to correct this fully is the most frequent cause of the stiffness and limitation of flexion of the ankle which too often follow the injury. All a Pott's fracture requires is really complete reduction, and secondly protection from erroneous deflection of body weight when walking is begun. This concerns the practitioner who first sees the case rather than the consultant. The reduction should be immediate in spite of the swelling and general effusion. Delay adds seriously to the difficulties and prospects. Some surgeons are afraid to exercise enough force. To reduce this fracture I first of all increase the deformity to disentangle the ends, and with the foot somewhat flexed pull the heel forwards and push the tibia backwards until I feel that the dislocation of the astragalus is amended. I then direct all the force that is needed to slightly over-correct the valgus. Unless there is a split fracture of the posterior portion of the tibia there is but little tendency to subsequent displacement, and for three weeks this over-corrected position is maintained. During that period I shall have carefully examined the position of the foot every few days. At the end of three weeks passive movements will be performed in the manner I have already suggested, but no weight-bearing should be done earlier than the fifth week. If the patient, although the position of the foot is perfect, is now allowed to walk without protection he will return to the out-patient department with a valgoid deformity, and herein lies the application of the second principle to which I referred—namely, the correct deflection of body weight. For six weeks or less the patient wears a boot with the heel crooked so that the body weight is deflected from the inside to the outside of the tarsus. If these simple methods are applied Pott's fractures will not prove in the least difficult. Unsatisfactory results are chiefly due to inefficient reduction and indiscriminately applied plaster. If when the case is not seen for a day or two after the injury difficulty is experienced division of the tendo Achillis will materially help the reduction of the displaced astragalus. In lateral deviation of several weeks' standing I have reduced the lateral displacement with a foot wrench, and where that is not available by a simple device which I learnt from

H. O. Thomas. It consists in placing a towel round the patient's heel and the surgeon's shoulders, and another round the lower end of the tibia and the surgeon's foot. When the surgeon endeavours to straighten himself, his thigh muscles pull the patient's tibia down and his shoulders pull the ankle up. After reduction and fixation walking is aided by the foot being kept in inversion by an altered heel and outside iron.

In old malunited cases I operate. If the main deformity is eversion I remove a wedge from the tibia three-fourths through the bone. The fibula is subjected to open osteotomy. The wounds are closed and the stitches removed in a fortnight, when the limb is fractured for purposes of correct alignment. I find it advantageous in this and other fractures and deformities to operate in two stages, so that in my subsequent manipulation I have only a simple fracture to deal with. In old cases of bad eversion and unreduced displacement of the ankle I remove the astragalus and correct the lateral deviation by osteotomy and wedge.

CONCLUSION.

I have given a brief outline of the methods and principles of treatment I employ. They are the result of long practice in a manufacturing and mining district, where I have had exceptional opportunities of seeing a very large number of injuries both immediately after the accident and at a later stage.

Briefly, I pay more attention to function than to appearance, consider correct alignment of more importance than meticulous care in reposition of fragment, believe that pain is always an indication for physiological rest, and therefore deprecate early forced passive movements.

If I prefer methods of manipulation and fixation in some cases where others of my colleagues would prefer an open operation, it is perhaps because for many years an increasing proportion of my work has been the treatment of deformities and disabilities whether of traumatic origin or not, and I have thereby gained confidence in using powerful but carefully graduated force in cases where another would hesitate to do so.

My object has been not so much to discuss various methods of treatment as to expose my own for discussion, and hope that those who follow may do the same for our mutual profit.

Liverpool.

ON THE USE OF POTASSIUM BICHROMATE IN THE TREATMENT OF PHTHISIS.

BY JAMES B. TOMBLESON, B.A., M.B., B.CH. OXON.

I AM glad to report the following six cases of phthisis treated by the internal administration of potassium bichromate.

CASE 1.—The patient was a man, aged 30 years, who had phthisis of four years' duration and who was losing ground. On July 27th his condition was as follows. Weight 129 pounds. Some cough, especially at night, small amount of expectoration containing three tubercle bacilli to a field. Appetite fair. Sleep fair. Right lung: Difficult to say exactly how much disease as the pleura was affected and thickened all over so much that all sounds were very distant. Left lung: Active disease over whole of the upper, and upper part of the lower, lobe, with a cavity at apex. Under treatment improvement was steady until Oct. 30th, when his condition was as follows. Weight 140¼ pounds. No cough. No expectoration. Appetite good. Sleep good. Right lung: No difference. Left lung: Clear except a patch of the size of a half-crown over which a few small crepitations are to be heard. Says he feels quite well, while his wife says that he *is* quite well.

CASE 2.—A woman, aged 27 years. Phthisis of seven years' duration. Had been in many sanatoriums and under all sorts of treatment with little and only transitory benefit, of late getting much worse, till on July 25th she was practically bedridden with condition as follows. Weight 100 pounds. Cough very bad. Much expectoration. Appetite very bad. Sleep poor. Cheeks fallen in. Right lung: Upper and middle lobes, resonance and air-entry much impaired, many moist sounds over whole extent. Left lung: Upper lobe in a similar condition. Under treatment there was steady improvement till on Oct. 30th the condition was as follows: Weight 123 pounds. Cough practically disappeared. Eats and sleeps well. Expectoration down to a third or less. Walks half a mile or more without fatigue. Lungs: A few small crepitations are still to be heard here and there over the front on both sides, nothing at all compared to what existed three months ago.

CASE 3.—A woman, aged 29 years. Phthisis of one year's duration. Condition on Sept. 3rd: Deep-seated disease in both lungs, with varying amount of physical signs. Frequent hæmoptysis, sometimes very severe. Much wasted and weak. Very short of breath, on the point of taking to bed. Under treatment, improvement was slow at first, possibly because she was a nervous woman and suffered a shock from the sudden death of a favourite dog; but it was more rapid afterwards, till on Oct. 30th she was much stronger, walking a fair distance easily; breath much better, hardly any cough, and no hæmoptysis for nearly three weeks.

CASE 4.—A woman, aged 65 years. Had phthisis as a girl, but recovered. Lets lodgings, and towards the end of a heavy season this summer was much run down and gradually became really ill with a bad cough and pronounced wasting. On Sept. 22nd I found her in bed quite convinced that she would never get up again. She was wasted and had a bad cough. She had a patch of dulness with impaired air-entry and many small crepitations on the left side extending from the apex to the third interspace. She was placed under the treatment to be described below. On Oct. 29th she walked up to the surgery to see me, and expressed herself as being much better; her cough was practically gone, her appetite and sleep were normal; she was much stronger, and she had put on a good deal of flesh. On examination her lungs showed no signs of disease, except that the resonance was very slightly impaired in the situation of the old trouble.

CASE 5.—A woman, aged 37 years. Old asthmatic with history of old phthisis, lately getting slowly worse, till she could not get about at all. Her condition on Oct. 1st was as follows. Very weak; could only sit up with difficulty for half an hour; no appetite and little sleep. Cough very bad, with much expectoration. (I did not examine for tubercle bacilli.) On examination I found both apices diseased, such disease extending over the front of both upper lobes. Under treatment her improvement was steady, till on Nov. 2nd I found her in a much improved condition, eating and sleeping better, feeling stronger, with the signs of disease in the lungs decidedly less.

CASE 6.—A woman, aged 23 years, had phthisis nine months and had only recently left a sanatorium; disease apparently progressing steadily. On Oct. 6th I examined her and found both upper lobes diseased, with early signs in the apices of the right middle and left lower lobe. She had a lot of expectoration, occasionally blood-stained, and the nurse in whose charge I found her said that she had as many as seven tubercle bacilli in a field. She had a poor appetite and was weak and listless. Placed under treatment, up to Nov. 1st, when I last saw her, she had rapidly improved both in the condition of her lungs and in general condition.

Of these six patients the last four do not know that they are under any special treatment; and no other medicine than the mixtures mentioned later have been used at any time during the treatment in any of the cases. Improvement has been noticeable after the expiration of the first fortnight of treatment. I am quite aware of the fact that the evidence given above is incomplete, but I hope that it will be sufficient to induce some to try it for themselves.

Now as to the treatment. I give the potassium bichromate in doses of ¼ gr. (2½ minims of a 10 per cent. solution in water) either alone or in a tonic mixture (phosphate, hypophosphite, or simple iron), such dose to be taken in a wineglass of water after food, at first twice and later three times a day. The first dose and possibly the second may cause vomiting, but this does not matter, as, in my experience, toleration is easily established without missing a dose. The colour of some of the mixtures changes from yellow to green, but this seems in no way to impair the efficacy of the mixture.

Westcliff-on-Sea.

TWO CASES OF COMPOUND FRACTURE, WITH TETANIC SYMPTOMS;

RECOVERY AFTER INJECTION OF ANTI-TETANIC SERUM.

BY E. K. WILLIAMS, B.A. CAMB., M.R.C.S. ENG., L.R.C.P. LOND.

I THINK that the interest of these cases is such that they are worth recording.

CASE 1.—The patient, a labourer, aged 53 years, and not a temperate subject, was supposed to have been knocked down or run over by a vehicle in the evening of Dec. 17th, 1909. The patient had no recollection of what happened between 5 P.M.—when he remembered being on the high road—and about 2 A.M. on the following morning. His description of what took place is as follows: "I woke up feeling very cold and stiff with a pain in my right leg; I knew where I was by the side of the road. I got up and felt that my right foot was hurt. However, I was able to walk to a cottage, some quarter of a mile away, where I roused up a man and asked him to allow me to stay in his stable. I opened the door and walked in and lay down on some straw and went to sleep. I was awakened by a man bringing me a cup of tea. I told him that I had hurt my leg and asked him to call my son, who was living in a neighbouring village, that he might bring a cart to take me home." It was not until the patient was being helped into the cart that the injury to the leg was recognised. He was brought to my surgery at 9.30 A.M.

Upon examination I found that the right foot was almost severed from the leg. The lower end of the tibia was shattered, and all that could be made out was a débris of blood, flesh, manure, and road dirt. Although the man was much collapsed immediate amputation was decided upon. He was given 8 ounces of brandy, which improved his condition, and in half an hour he was anæsthetised and I removed the leg 6 inches below the knee. Symptoms of collapse recurring some six hours after the operation another 8 ounces of brandy were given. The patient's condition until Jan. 5th, 1910, was as satisfactory as could be expected, although there was some sloughing of one of the flaps. On Jan. 6th the patient showed symptoms of delirium tremens, and at the same time he complained of stiffness of the jaw and side of the neck. He was unable to rest and took nourishment with difficulty; his pulse was 140 per minute, and the temperature was 102° F., his condition being altogether very critical. Remembering the advice given by Sir Edgecombe Venning in the course of a consultation on a previous occasion regarding the administration of large doses of alcohol in delirium tremens, a considerable dose of neat brandy was administered, with the result that the patient became quiet and was able to get some sleep. Anti-tetanic serum (40 c.c.) was injected into the right flank in the morning of Jan. 7th and 12 hours afterwards another 20 c.c. into the left flank. The muscular spasm, which had now set in, became more frequent and swallowing was difficult, the spasms being more marked in the muscles of the abdomen and the remaining leg. The patient, again showing signs of collapse, was given an ounce of brandy every four hours. On the following day another 40 c.c. of the anti-tetanic serum were injected (20 c.c. in the morning and the same quantity in the evening), with the result that the spasms became less easily excited, but the patient was so collapsed that four ounces of brandy were given and were repeated in two hours' time, and again he was able to get short intervals of sleep. After this no more serum was given. The spasms became gradually less intense and the patient obtained longer intervals of sleep. Liquid food, however, could only be taken three or four times a day, as the attempt to swallow was usually the signal for the "setting" of the muscles of the neck, and it was not until three weeks after the onset of the symptoms that the patient was able to swallow his first piece of solid food. Apart from the fact that there was some slight necrosis of the lower end of the tibia, which necessitated the removal at a later date of a small sequestrum, the patient made a good recovery.

CASE 2.—The patient, a farmer, aged 69 years, fell out of his cart in June last, and was hung up by one leg to some wire-work attached to the body of the cart. The horse took fright, and the patient was dragged about 90 to 100 yards. When I saw him the forearm was nothing but a shapeless mass of manure, road dirt, fleshy pulp, and tiny spiculæ of bone. Immediate amputation being necessary, I removed the forearm just below the elbow-joint, and at the same time injected 20 cubic centimetres of anti-tetanic serum. All went well until the end of the second week, when the patient complained of a sense of stiffness about the neck and jaw. A second injection was then made of anti-tetanic serum, and in three or four days the tetanic symptoms ceased and the patient made a good recovery. I feel sure that the early injection of the serum had a prophylactic action.

Billesdon, Leicester.

OSTEOMYELITIS OF THE LEFT CLAVICLE.

BY ANGUS MACDONALD, M.B., C.M. EDIN., D.P.H. VICT.
HOUSE SURGEON, MACCLESFIELD GENERAL INFIRMARY.

THE literature on this subject is scant and unsatisfactory, and as I have been able to watch a case in all its clinical aspects, perhaps the following facts may be of interest.

A boy, aged 5 years, was admitted to the Macclesfield General Infirmary at 3 P.M. on Friday, April 29th, 1910, manifestly ill. His respirations were 48, his temperature 103·6° F., and his pulse 160. His face was markedly cyanosed, and resembled that of a pneumonic. The history was indefinite. The boy's mother informed me that her son had swallowed a marble. She could not say for certain when this happened, for she had only learnt the fact from the boy on the previous Wednesday when he was first taken ill; but from what he had told her she was of the opinion that it was on the Tuesday that it must have occurred. No other facts could be ascertained.

On admission, a swelling was noticed on the left side of the patient's neck involving the left supra-clavicular, clavicular, and infra-clavicular regions, and the boy kept his head turned rather towards his right side. The swelling was moderate in amount, and the area was slightly hyperæmic as though a poultice had been applied for a short time thereto. It was very tender to the touch, and gave to the fingers a slightly boggy feeling, suggestive of exudation. The percussion note yielded over the said area was dull; auscultation, however, did not reveal any pathological signs. The lungs were next examined, but nothing of clinical importance could be detected. In view of the history of the case an X-ray examination was conducted, but gave no information. I should also add that the blood did not show a leucocytosis, nor did it give the glycogenic reaction. Exploratory needles were inserted over the area of the swelling but were of no avail. The case was discussed, but owing to the conflicting nature of the signs it was recommended to "wait and see," no diagnosis being definitely arrived at. During the same evening the patient's cyanosis increased, his respirations going up to 55. On the next morning (April 30th) the boy developed diarrhœa. His temperature dropped from 103° to 101° and at noon to 99°, his pulse becoming wretched and his face livid and pinched. His respirations went up to 60 in number. Stimulants, including oxygen, were administered, and he revived for two hours; at 3 P.M. he again collapsed, and death took place about 5 o'clock.

A post-mortem examination was made the same evening and the following is a summary of what was found. The child was well developed and well nourished. On incising over the left clavicle the same was found to be stripped of its periosteum, so much so that a single incision on its superior surface allowed the margins of the wound to sag and displayed the shaft. No pus was present, but the bone and its periosteum were separated by a layer of serum about 3 millimetres in diameter. It is interesting to note that the two extremities and joint cavities were unimpaired, the condition stopping short at the capsular ligaments. The bone was of a dirty slaty-blue colour and perfectly smooth. The pleuræ of both lungs were covered by a layer of fibrin 2 millimetres thick. The pleural cavities contained no free fluid, but the membranes were slightly vascularised here and there. On section both lungs showed patchy lobular consolidation. The left apex showed uniform consolidation, this condition having spread directly from the left clavicle. The heart on its pericardial aspect showed typical plastic

pericarditis, with the bread-and-butter appearance. The mitral valves had small vegetations on their surfaces, and showed slight vascularisation at the bases of their cusps. The aortic valves were seemingly unimpaired. Aspiration of bloody serum from the right ventricle yielded a culture of staphylococcus aureus in purity in 18 hours. On a smear on slope agar 4 centimetres long there were 11 colonies.

Of interest in this case are the following points: 1. The misleading history. The fact that the mischief was left-sided suggested to one of the surgeons who saw the case that it might be a mediastinitis consequent to injury to the œsophagus. 2. The absence of any reaction by the hæmic system to combat the situation, inasmuch as the infection was widely disseminated, and there was no leucocytosis or glycogenic reaction, and (post mortem) there was no pus formation. 3. The fulminating character and, above all, the rarity of the lesion.

I must record my gratitude to Mr. J. H. Marsh, honorary surgeon to the infirmary, for permission to publish this interesting case.

Macclesfield.

A CASE OF UTERUS BICORNIS UNICOLLIS.

BY JAMES L. MASTERMAN-WOOD, M.B. EDIN.

THE patient was aged 35 years, married, and has had one child, born in February, 1909. Labour was artificially produced at the seventh month because of the exsanguined condition of the patient owing to repeated severe hæmorrhages which occurred during the fifth, sixth, and seventh months of pregnancy. She suffered regular but slight loss during the first four months of pregnancy. Presentation was normal. At the confinement the patient had a profuse post-partum hæmorrhage to which she nearly succumbed. Eventually she recovered completely, and again became pregnant in November, 1909.

Early in January, 1910, she commenced to bleed rather heavily per vaginam whilst walking, and was immediately ordered to bed. On vaginal examination a complete ovum was found lying in the vagina. It was approximately a six weeks ovum. The cervix was patulous, and bulging through the internal os could be felt a soft elastic mass which was considered to be a second ovum. Under suitable treatment the cervix contracted and the bleeding ceased without the passage of the suspected second ovum.

Early in February she had what she considered was like a rather profuse menstrual period, which necessitated rest in bed for two days. The patient being very anxious to have a second child, and her medical attendant hoping that the second ovum might continue to live, kept her strictly at rest for a considerable time. However, on March 4th she suffered a severe loss again, and I was on the 8th called into consultation over the case. (At this time, it will be noted that, had the pregnancy proceeded, she would have been in the fourth month.) There were no secondary signs of pregnancy. On bimanual examination two tumours, separated by a distinct sulcus but not moving independently of one another, could be felt occupying the position of the uterus. The right tumour seemed to the examining fingers to be a little larger than an ordinary unimpregnated uterus, whilst the left tumour was decidedly smaller. A diagnosis was made of a bicornuate uterus in both horns of which pregnancy had occurred; the left smaller horn had aborted, whilst the right horn retained a missed abortion.

On March 12th I operated. After preliminary dilatation with Hegar's dilators I found, on introduction of the finger through the cervix, two cavities separated by a distinct ridge. The left was very small, but admitted the sound for 1¾ inches. The right cavity was considerably larger and measured 3½ inches. Both cavities were well curetted. The right one contained decidual tissue. The patient made an uneventful recovery, and, except for one rather profuse menstrual period in April, she has menstruated regularly and normally since, and declares that she has never been in better health.

It is with the kind permission of Dr. G. S. Ware that I send these brief notes.

Barnstaple.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SURGICAL SECTION.

Fractures in the Neighbourhood of Joints.

A MEETING of this section was held on Nov. 8th, Mr. J. WARRINGTON HAWARD being in the chair.

Mr. ROBERT JONES (Liverpool) read a paper on the Treatment of Fractures in the Neighbourhood of Joints, which is printed in full on p. 1479 of this issue of THE LANCET.

Mr. RUSHTON PARKER said that the points to which he desired to draw attention in the manner of dealing with the fractured humerus were the slinging of the arm to the neck and the flexion of the elbow to a more or less acute angle. The adoption of that attitude in any injury between the clavicle and elbow, both inclusive, was of the greatest service in examination and diagnosis as well as in treatment. By that manœuvre the upper limb was bent into two portions, one of which, containing the hand and forearm, was suspended from the neck; the other portion alone was suspended from the shoulder. In fractures of the humerus the injured upper arm was thus at once relieved of the weight and disturbing inconvenience of the forearm, which, when left hanging loose or not specially provided for, caused pain and deformity to the patient and ineffectual devices on the part of the surgeon. In fracture of the lower fourth of the humerus, on account of the invariable tendency to adduction of the condyles under the weight of the elbow, a twist imparted to one of the splints effectually maintained the lower smaller fragment in line with the upper while controlling both. It was needless to add that that manœuvre was only applicable to a splint of sheet metal. In cases of simple fracture it was not difficult, when once the wrist was slung and the elbow bent, and the weight of the forearm removed from the arm, so to apply the splints at the commencement of treatment or by later readjustment as to secure a painless and correct position without hampering the patient's freedom in other respects.

Mr. R. WARREN said that treatment in the neighbourhood of joints might be conveniently divided into (*a*) those which actually involved the cartilage-covered bearing surface of the joint, and (*b*) those which were merely in its vicinity but which might be outside the capsule. A much greater degree of accuracy in replacing the fragments was necessary in group (*a*) than in group (*b*), since open operation would be more often required in the former than in the latter group. Stress was to be laid on the importance of other component parts of the limb beside the base of joints, ligaments, nerves, muscles, &c. Early movement was important in fractures of some joints and was in part an indication for open operation, but only when movement of the joint caused displacement of the fragments. Fractures involving joint surfaces would in adults frequently, in children less often, require open operation even when displacement was small. Attention was directed to the feasibility of moving the shoulder-joint after fracture in 2 to 14 days and massaging from the first. In fractures of the olecranon appreciable separation was frequently absent; a good rule would be to wire or screw those which could not be slung at a right angle without separation occurring. The value of acute flexion in fractures about the elbow was touched on.

Mr. R. H. A. WHITELOCKE said that in all cases of fracture of the patella in which there was much separation the open method of treatment was the only satisfactory one. In consequence of the Workmen's Compensation Act and the Employers' Liability Act the public were no longer satisfied with merely good functional results in the treatment of fractures, and that fact must be accepted in the treatment of fractures in which good anatomical as well as functional results were to be attained in spite of the teaching in some of the text-books. He (Mr. Whitelocke) thought that Mr. Jones had struck the right note when he emphasised the important rôle of a correct alignment, particularly in the case of the lower limbs. He was pleased to hear that

Mr. Jones admitted that there were certain fractures in which open operation was permissible.

The adjourned debate on this subject will be held by the Surgical Section of the Royal Society of Medicine at 15, Cavendish-square, on Tuesday, Nov. 29th, at 5 P.M. Speakers will be limited to ten minutes, and intending speakers are requested to send their names to Mr. Jonathan Hutchinson, 1, Park-crescent, W.

CLINICAL SECTION.

Exhibition of Cases.

A MEETING of this section was held on Nov. 11th, Sir A. PEARCE GOULD being in the chair.

Dr. H. BATTY SHAW showed two cases of the Symptomatic Infantilism described by Mr. Hastings Gilford. The first case was that of a female, aged 18 years, height 4 feet 4½ inches (average, 5 feet 1·95 inches), weight 4 stones 1½ pounds (average, 8·2 stones), belonging to a family of normal height and weight. Skiagrams showed that the bony union of the pubis and ischium with the ilium, like a normal individual's, was not complete, but that the union of the great trochanter with the femur, unlike a normal person's at this age, was also incomplete. The patient was clever at needlework, which she carried out at home, earning 4*s.* weekly. She refused "to go to business" with her sisters, preferring to work at home. The delay of growth was first noticed at the third year of life. The expression of the face and the manner of the patient were those of her years but not of her stature. She had never menstruated, and there was no trace of sexual development such as occurs at puberty. The mother had one miscarriage after the birth of this child. From the age of three years the patient suffered for some years with a swollen abdomen and very offensive motions. Dr. Shaw considered that the case was one of intestinal symptomatic infantilism. The second was that of a female, aged 27 years, height 4 feet 6 inches (average 5 feet 2 inches), also belonging to a family the members of which were of normal height and weight. Skiagrams showed that union of the epiphyses of the femur and tibia was not yet complete; at her age they should be. She helped at home, but could not do needlework. She made no progress at school, but had, since her school years, taught herself to read and write at home; she was unable to do responsible work and had a bad memory for recent events. The teeth were defective and the palate was arched. She was a six months child, and at the age of one year was smaller than her newly-born sister. The mother had had no miscarriages. As in the last case, her facial expression and manner generally were more those of a normal individual of her age than of a child of her height. She was not without a fair amount of intelligence, and entered freely into any discussion at home. She had always been very constipated, and up to ten years of age slept 18 hours out of the 24 daily; even now she slept in the daytime a good deal. She began to menstruate at the age of 18, but was not very regular. Though the breasts were not much developed there was the usual development of hair met with at puberty. Dr. Shaw thought that the case was a doubtful one of intestinal symptomatic infantilism. He also showed a case of Asexual Ateleiosis (sub-group of essential or cryptogenetic infantilism of Hastings Gilford). The patient was a male, aged 36 years, height 3 feet 8¾ inches, weight 4 stones 11 pounds 1 ounce, belonging to a family of normal height and weight. Skiagrams showed want of union between the epiphyses and diaphyses of the bones of the hand and forearm. The patient was of good intelligence after a simple childish fashion, such as might be expected of a child with many years of experience. He had worked for the last five and a half years as a compositor, and earned 9*s.* weekly. The delay of growth was first noticed between one and two years of age. In contradistinction to the above two cases the delay of growth and development was much more marked. The external organs of generation were in size and appearance like those of a young child; the testicles were undescended. There was no development of hair upon the face, but the latter showed wrinkling as of age; his manner suggested age, as it was assured, and even a little patronising, to normal adults who had not reached his years. (For full particulars of his condition see Transactions of the Royal Medical and Chirurgical Society, 1902, Vol. LXXV., p. 316, article on Ateleiosis by Mr. Hastings Gilford, to whose courtesy Dr. Batty Shaw is indebted for the use of the case for demonstration.) Dr. Batty Shaw said that, thanks to Mr. Hastings Gilford, something like order had been produced out of the confusion of ideas connected with so-called dwarfs. By dwarfism was meant a condition in which there was defective growth. Development, however, was perfect, and such subjects were simply examples of small men and women; examples might be sporadic or whole races like the various pigmy tribes of the world might occur. Infantilism, however, was quite a different condition: not only was there delay in growth but in development as well, with the result that with diminished stature there existed the defective physical characters or defective mental characters or sexual imperfections. Infantilism might be primary or secondary—i.e., it might be apparently independent of any known cause. The primary cases included cases of ateleiosis (literally "not arriving at perfection") and progeria, two types of infantilism the sharp differentiation of which was entirely due to the efforts of Mr. Hastings Gilford. The cases of ateleiosis showed a curious combination of the features of infancy or childhood with those of more advanced years, whereas cases of progeria showed a mixture of the features of infantilism and senilism. Ateleiosis might be subdivided into two extreme groups; in the one there was full sexual development, though it might have been delayed in appearing; in the other the sexual development was very imperfect, and between these two groups there were others of varying and intermediate stages of development. Dr. Batty Shaw's two cases represented examples of secondary infantilism. The importance and ease of distinguishing between the two types were shown in the following way. Cases of secondary infantilism were dependent upon causes or associated with conditions with which they were all familiar: rickets, syphilis, congenital morbus cordis, micromelia or achondroplasia dystrophia, microcephaly, kyphosis, cretinism, mongolism, intestinal disorders, and even disorders of the pancreas, scarlet fever, typhoid fever, and rheumatic fever. The features of the infantilism in such cases were much less marked than in the primary group, and, moreover, they were not transmissible to succeeding generations. On the other hand, the cases of primary infantilism were dependent upon no known cause, they were very much more marked cases of infantilism, and, as Mr. Hastings Gilford's researches showed, a sexual ateleiotic might beget an asexual ateleiotic child. The contrast between these two groups of infantilism was well shown by the case kindly sent by Mr. Hastings Gilford when compared with his own cases of symptomatic infantilism.

Cases were also exhibited by the following:—Dr. E. FARQUHAR BUZZARD, Dr. ARTHUR LATHAM, Mr. E. L. HUNT, Dr. HERBERT S. FRENCH, Mr. ARTHUR H. EVANS, Dr. JAMES GALLOWAY, Dr. A. E. GARROD, and Dr. A. MANUEL.

SECTION OF ANÆSTHETICS.

Prolonged Anæsthesia maintained by Ether and Gas alternately.

A MEETING of this section was held on Nov. 4th, Mr. RICHARD GILL, Vice-President, being in the chair.

Mr. A. L. FLEMMING communicated a paper on Prolonged Anæsthesia maintained by Ether and Gas alternately. The suggestion that the methods now ordinarily in vogue left room for improvement was based upon the supposition that over-stimulation with ether might contribute largely to some of the post-operative shock occasionally following on certain prolonged and grave operations, especially such as involved the removal of large masses of tissue, as, for example, amputation of limbs, amputation of carcinomatous breasts, and excision of the rectum. Crile and others having noticed that this collapse was less in evidence after nitrous oxide and oxygen than after other anæsthetics, the author of the paper had endeavoured, in a series of 86 more or less grave cases, to diminish the amount of ether used by alternating its exhibition with that of nitrous oxide and oxygen. Although vomiting and nausea were not absent, still they were on the whole less frequent even than after ether, or ether and chloroform; and the general condition, as far as the patient's feelings were concerned, was satisfactory, and in many cases there was no resulting nausea or misery. So far as could be judged from the 86 cases there seemed to be complete absence of any post-operative collapse, but the numbers were

too few to exclude the possibility of coincidence in this respect. Mr. Flemming's object in putting his experience in this method thus early before the section was to suggest that herein possibly lay a means of limiting the extent of ether saturation where it might be considered advisable to do so. For experimental evidence as to the possible evil effects of ether anæsthesia reference was made to Dr. W. D. Halliburton's Croonian lectures of 1901, entitled "The Chemical Side of Nervous Activity"; and to Dr. George Crile's neurocytological studies of the brains of animals under nitrous oxide and oxygen and ether respectively; also to Graham's immunity experiments. As regards technique, the method required a minute attention and concentration, the difficulty being to know exactly when to change from ether to gas, and *vice versâ*. The routine employed in most of the cases here reported was as follows. After inducing by ethyl chloride and ether, anæsthesia was maintained by ether, open or closed, for the first 15 or 20 minutes, until, in fact, the operation was well under way. At this point nitrous oxide and oxygen, with frequent breaths of fresh air, was substituted and continued for a short interval varying in length from three to five minutes, and a change to ether then made, and so on throughout, nitrous oxide anæsthesia being, as is were, superimposed upon ether intoxication; it was generally found that as the operation progressed it became possible to shorten the ether sessions, and to prolong those of nitrous oxide and oxygen. From his experience in these 86 cases the author had come to the conclusion that it was sometimes to the patient's advantage that nitrous oxide had been thus employed so as to lessen the amount of ether toxæmia, and he was satisfied that a perfectly smooth anæsthesia could be maintained by the alternating system, although he felt that with improved apparatus it should be possible to obtain the same result with less changing and chopping. Among the patients who had proved favourable subjects were many for whom nitrous oxide and oxygen alone would not have been suitable, such as alcoholic men, very stout patients, bronchitics, and senile subjects.

Mr. GILL said he had given ether alternately with gas and oxygen for short operations. He was glad to hear that Mr. Flemming laid stress on the limitation of the dose, and also on maintaining the degree of anæsthesia as light as possible.

Dr. J. BLUMFELD had also used these anæsthetics for short operations. He asked whether Mr. Flemming regarded his cases as nitrous oxide or ether anæsthesia? How did he manage to avoid reflex phenomena; if these occurred, did he consider them an indication for ether?

Dr. J. F. W. SILK considered that a very rapid recovery from anæsthesia, as in the case of gas and oxygen, was not wholly an advantage, as the period of analgesia that accompanied recovery from an anæsthetic masked post-operative pain. He thought that severe after-effects usually depended on a uniform level of anæsthesia not having been maintained, and the method advocated by Mr. Flemming would require great skill, and also the use of a very large quantity of nitrous oxide.

Mr. H. E. G. BOYLE inquired why Mr. Flemming induced with ether instead of gas and ether? He considered that a level anæsthesia would be very difficult to maintain with the alternation of the anæsthetics, and that after-sickness would probably be frequent.

Mr. R. W. COLLUM had occasionally used ethyl chloride to deepen ether anæsthesia, as when, for instance, a student allowed a patient to come partially round; these cases had a good deal of after-sickness. He did not see the advantage of alternating the anæsthetics.

Mr. HARVEY HILLIARD had kept records of after-sickness and found it was less frequent when a regulating inhaler was used.

Mrs DICKINSON BERRY considered that light anæsthesia rather than a necessarily level anæsthesia was one secret of absence of after-effects. She found goitre cases were scarcely ever sick, whether they had chloroform or ether. In these cases a very light anæsthesia was maintained, but it was not level throughout, as at a certain stage they were always allowed to come partially round and strain in order to make sure that the vessels were satisfactorily secured.

Mr FLEMMING, in reply, said that he was surprised himself when he tried the method advocated both by the ease with which a level anæsthesia was maintained and at the satisfactory after-results.

Mr J. F. TREWBY showed a new Inhaler for administering nitrous-oxide gas by the nasal method.

LARYNGOLOGICAL SECTION.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Nov. 4th. The new President, Dr. WATSON WILLIAMS, was in the chair, and delivered an opening address, after which

Dr. DAN MCKENZIE exhibited specimens of a Nasal Septum showing Windows. One of the specimens was removed by Dr. Cyril Horsford, the other by Dr. McKenzie. They were interesting for two reasons: first, because the presence of a window in the septal cartilage, with intact mucous membrane, rendered the operation of submucous resection more difficult, unless the possibility of this condition were remembered; secondly, because the spontaneous production of septal perforation from ulceration was favoured by the presence of such windows. In Dr. McKenzie's experience, acute perforating ulcer of the nasal septum penetrating not only mucous membrane but also cartilage was extremely rare. As to the cause of these windows the opinions generally seemed to be that they were sometimes developmental and at other times were induced by the long-continued bilateral pressure upon the cartilage of mucous scales or crusts.

Mr. HAROLD BARWELL showed a case of Subglottic Stenosis after Tracheotomy.

Dr. STCLAIR THOMSON showed a case of Scleroma of the Naso-pharynx in a Polish woman.

Dr. G. WILLIAM HILL exhibited a case of Carcinoma of the Œsophagus in which the dysphagia was treated by a new form of intubation apparatus. The patient was a man aged 49 years, with a history of five months' dysphagia. Much frothy mucus was expectorated, and there were present cough and abductor paralysis. Œsophagoscopy showed fungating growths on the anterior and posterior wall. There was a tight stricture 28 centimetres from the teeth; a portion was removed for microscopy (epithelioma). After great difficulty and delay the stricture was threaded and dilated up by graduated bougieing, and Dr. Hill's styletted modification of Symonds's long rubber intubation apparatus was inserted. The patient was at first fed entirely through the tube, but could now swallow soft food beside it; the mucorrhœa also was much less and the patient was not so asthenic. The disease was considered too advanced and the actual strictured area too long for radium treatment, but the method of permanent intubation employed did away with the necessity of resorting to gastrostomy. The apparatus, with its dental attachment, was also exhibited.

Dr. W. JOBSON HORNE showed a case of "Dents de Scie" of the Vocal Cords.

Dr. H. W. FITZGERALD POWELL and Dr. G. W. BADGEROW showed a case of Tumour of the Post-nasal Space which had been exhibited at the previous meeting. The patient was a man aged 27 years. A tumour of the post-nasal space was pushing the soft palate forward and involving the palate; it was growing from the lateral walls of the naso-pharynx and infiltrating the lining of the same, and it extended down to the tonsil, which it involved. It was removed by operation, along with the portion of palate involved and the tonsil. Good recovery followed. An obturator closing the opening (fitted by Dr. J. W. Pare) was employed, and there was no recurrence.

Mr. C. A. PARKER exhibited a Tonsillolith in the left supra-tonsillar fossa.

Dr. BADGEROW showed a case of Small Tumour of the Soft Palate.

Mr. W. G. SPENCER showed a case of Lingual Thyroid.

Mr. T. JEFFERSON FAULDER exhibited a case for Diagnosis. The patient, a female, aged 23 years, had a swelling at the left side of the nose and the inner canthus of the left eye. It first attracted her attention about three years ago by causing pain. She now had intermittent headache and, on stooping, felt giddy. She suffered from nasal obstruction; the mouth was always dry and offensive in the morning, when she would cough up some "phlegm and bad blood." This condition would improve during the day. There were no occular symptoms except some epiphora and irritation. The swelling in the left inner canthus and the outward displacement of the left eye were easily seen. The swelling corresponded in position to the lamina papyracea of the ethmoid bone and the tendo oculi was stretched across its front. It was hard, rounded, sessile, and slightly tender. There was a swelling of similar character in the antero-superior part of the left nostril. The

post-nasal space was normal in all respects except for dryness of the mucosa. Transillumination of the antra was equal and remarkably bright; of frontal sinuses it was negative, or, if anything, somewhat against the right sinus. With the case were shown (*a*) photographs of the patient at the ages of 6 months and 15 years, both showing asymmetry of the orbits; (*b*) skiagrams; and (*c*) an orbito-nasal (ethmoidal) exostosis removed from a female patient, aged 20 years, who had proptosis, diplopia, and defective vision (3/60) of the right eye, as well as right nasal obstruction. The tumour was visible in the naso-pharynx, blocked up the right nostril, and was shown by skiagrams to extend in the orbit as far back as the optic foramen. It consisted of cancellous bone with a covering of dense eburnated bone. This patient has recovered her vision and remained well ten months after operation.

Dr. NOEL D. BARDSWELL showed a case for Diagnosis.

Dr. HORSFORD showed a case of Aphonia for Diagnosis.

The PRESIDENT exhibited a Laryngeal case.

Dr. F. F. MUECKE showed a man with Paralysis of the Internal Tensors.

Dr. J. DONELAN showed a man with a Fistulous Opening into the Maxillary Antrum.

OBSTETRICAL AND GYNÆCOLOGICAL SECTION.

Chronic Endometritis.

A GENERAL meeting of this section was held on Nov. 3rd, Dr. H. MACNAUGHTON JONES, the President, being in the chair.

The PRESIDENT referred to the great loss which the section had sustained through the death of Dr. J. J. Macan. He had attended the council meeting in October, and had been present at the opening meeting of the session. Dr. Macan had held a prominent place in the literature of obstetrics and gynæcology in this country for over 20 years. He edited the *Journal of the British Gynæcological Society* for several years, and his comprehensive quarterly summary of current international literature was not excelled in any cognate journal in any language. With a genial, generous-hearted, and kindly disposition, outspoken, ruggedly honest in his praise or criticism, there was a striking personality which would live in the affection and memory of all those members of the section who knew him and admired his abilities.

Dr. ARCHIBALD DONALD and Dr. W. FLETCHER SHAW read a paper on the Symptoms and Treatment of Chronic Endometritis, with Special Reference to the Results of Curetting. The paper dealt with the clinical aspects of chronic endometritis. The name was used to denote a class of cases of which the commoner symptoms were menorrhagia, metrorrhagia, leucorrhœa, dysmenorrhœa, and pain in the lower abdomen, associated with a moderately enlarged uterus which was tender on palpation. Two groups of cases were included under the name: in one an inflammatory change seemed possible; in the other any inflammation of a septic or specific origin seemed out of the question. So far little help had been forthcoming from the pathologist as to the changes in the endometrium which were associated with these symptoms. Dr. Donald and Dr. Shaw continued to use the name "chronic endometritis" as a matter of convenience, although real inflammation of a chronic kind was probably rare. The objects of the inquiry were to ascertain the results of curetting and the comparison of the results in the different types of case, and further to find out the relative frequency of the various symptoms and the result of treatment in each individual symptom. The clinical material consisted of 267 cases (hospital and private) of uncomplicated chronic endometritis. Notes had been taken before treatment in all of these cases, and the later condition of the patient was ascertained by written replies to printed questions. In all cases at least 12 months had elapsed since the operation. An analysis of the symptoms and their relative frequency showed that menorrhagia, dysmenorrhœa, and leucorrhœa were most frequent in all cases, menorrhagia and leucorrhœa being most frequent in women who had had children, and dysmenorrhœa in nulliparæ and virgins. Notes were made as to the position of the uterus in 188 cases, and it was found that anteflexion was twice as common as retroflexion in virgins, while in women who had borne children these conditions were reversed. As to the effects of treatment, the general result was that of the 267 patients 230 (or 86·1 per cent.) were relieved, and 37 (or 13·9 per cent.) were not relieved. The large majority did not obtain the full benefit until some months after the operation. Particulars were given in detail as to the results in regard to the various symptoms. In dysmenorrhœa the results were very good and went to confirm the belief that this symptom was often caused by some abnormal condition of the endometrium. Leucorrhœa was not quite as amenable to treatment, although the results were fairly good. Attention was directed to the point that the leucorrhœal discharge in the cases under consideration was always of uterine and not of vaginal origin. For the chronic abdominal pain and also for metrorrhagia the treatment was very successful. Some observations were made on the position of the uterus, and the results of curetting alone in cases in which the uterus was retroflexed or retroverted were found to be rather better than in the cases in which the uterus was anteflexed or anteverted. The effect of curetting in cases of sterility was distinctly good; in nearly one-third of the cases pregnancy followed within a comparatively short period.

OTOLOGICAL SECTION.

Syphilis in Relation to Otology.

A MEETING of this section was held on Oct. 25th, Mr. ARTHUR H. CHEATLE, the President, being in the chair.

After a few introductory remarks, in which he thanked Dr. E. Law for the very able manner in which he had carried out the duties of president during the preceding year, Mr. Cheatle referred to the arrangements for the section during the coming session. He announced that six meetings would be held instead of four, and that possibly in addition there might be an extra-metropolitan one at Bristol. He also announced that the meeting on March 17th, 1911, had been set apart for a general discussion, the subject chosen by the council being Trauma in Relation to Otology, to which it was hoped that members of the Surgical Section would come.

The PRESIDENT then opened a discussion on Syphilis in Relation to Otology. He divided the subject into cases due to (1) congenital and (2) acquired syphilis, and then proceeded to subdivide them according as to whether the external ear, the middle-ear tract, or the perceptive portion of the ear was involved. In speaking of the congenital cases he laid special stress on the importance of Wassermann's test for the diagnosis, and in reference to the treatment he pointed out that he had generally found the usual anti-syphilitic remedies useless, but hoped that better results might be obtained from Ehrlich's "606." He also mentioned that in these cases he had obtained great benefit from the use of blisters applied to the mastoid. In dealing with cases of middle-ear deafness in acquired syphilis, he laid great emphasis on the importance of examining the naso-pharynx for gummata, and also pointed out the difficulty of exactly localising the seat of the lesion when the perceptive portion of the ear was involved owing to the absence of post-mortem examinations in such cases. The various forms of disease were illustrated by cases that had come under his own observation.

Dr. URBAN PRITCHARD stated that he was glad to hear the President's allusion to the fact that in congenital syphilis the age was not always a fixed one; he had seen cases which came on quite late in life, and occasionally the keratitis came on after the internal ear symptoms; he had himself had excellent results from blistering. In regard to acquired syphilis, he had been struck with the infrequency of Eustachian deafness in syphilitic pharyngitis, and in cases of secondary or tertiary affections of the meatus he pointed out that it was very easy to make a mistake in thinking that the condition was epithelioma.

Mr. C E. WEST asked if there was any definite proof in the late cases of labyrinthine trouble of the patient being syphilitic, and even if the patient was syphilitic as a child, that the later deafness was due to syphilis. He mentioned that he had never seen a case of chancre of the Eustachian tube, but that a collection made in 1885 gave 100 cases, many of them reported in France; he thought that the increasing use of sterilisers coincided with their disappearance. In regard to condylomata, he had been struck with the intense pain the patients suffered.

Mr. A. L. WHITEHEAD stated that as a point of diagnosis he had always regarded the chronic painless effusion of the

knee-joint as a valuable sign. With regard to ulceration of the nose and nasopharynx in congenital conditions, he did not think this was infrequent; he thought that the point was not sufficiently emphasised that in congenital syphilis there might be double lesions. With regard to condylomata in the acquired condition, he agreed with Mr. West as to the pain that was present, and pointed out that though intractable, as a rule they healed without causing contraction.

Mr. P. MACLEOD YEARSLEY said he would like to disagree with the President on one part of his paper—viz., that in which he said that the disease never caused lesions in utero such as to produce deaf-mutism; he did not think that that statement was proved, as Bardeau described his researches on stillborn children who were syphilitic, and he found the middle and internal ear involved, chiefly purulent middle-ear inflammation with adhesions of the membrane and hæmorrhages and accumulations of pus in the labyrinth with destruction of the organ of Corti. He thought it possible that syphilis might cause deafness in utero. He agreed that otosclerosis was not due to syphilis.

Dr. DAN MCKENZIE pointed out that syphilitic deafness might come on when the patient was under antisyphilitic treatment, and related a case illustrating this point. With regard to the pathology of the congenital cases, he agreed with Mr. Yearsley and remarked that a paper had appeared in the Archives of a German society which dealt with cases of stillborn children from syphilis. On microscopic examination these children were found to have distinct lesions, probably of a meningeal character, consisting of round-celled infiltration, and there were other pathological changes which, if these children had lived, would probably have caused deafness. With regard to the vestibular test, he remembered testing a few congenital cases in one of which the vestibular reactions were normal, but in most of those tested the vestibular reactions were absent in proportion to the deafness.

Mr. J. E. R. MCDONAGH did not think one could gauge the effect of treatment in congenital syphilis, because, irrespective of treatment, congenital syphilis tended to give a positive Wassermann reaction throughout life, and that was not altered however much mercury was given. That positive reaction should not be taken as an indication that the "606" had no effect on the Wassermann reaction in congenital syphilis. In late acquired syphilis one could change the reaction by giving "606." He had treated only one case of ear trouble with "606," and that was an acquired case in which the patient had a lesion of the ninth nerve on one side. He had reported the case in THE LANCET.[1] Hearing was certainly improved after the injection. With regard to eye troubles after the injection, Ehrlich had had 12,000 reports without any eye trouble. He himself had injected 82 patients and there had been no eye trouble; two of them had optic neuritis, but it cleared after the injection. In answer to Mr. SIDNEY SCOTT, he said that in congenital syphilis, if one got a negative Wassermann test one could be fairly certain the case was not congenital syphilis. In acquired syphilis that did not always hold good; there was a small percentage who had got syphilis but who gave a negative Wassermann reaction.

Mr. E. B. WAGGETT referred to the importance of examining the post-nasal space in patients who had otalgia with syphilis. He asked the President as regards his experience of suppuration in the middle ear in cases of tertiary syphilis; he had himself seen a few cases.

The PRESIDENT, in his reply, said he had come to learn and he had learnt. He had already expressed his ignorance of some of the points about which he had been questioned. As to the proof of the cases being syphilis, he had taken every care to exclude everything else, but most of the cases were seen before the Wassermann test was in vogue. The keratitis frequently preceded the ear trouble, and he thought it was more frequent than was generally supposed. With regard to middle-ear affection in congenital syphilis, apart from Eustachian obstruction met with in nasal disease, he did not think there was such a thing as congenital syphilis causing what would appear to be catarrh of the middle ear, producing changes in the membrane. It was curious that condylomata did not cause contraction. He was glad to hear Mr. McDonagh's remarks, and it was clear that much experience was necessary in order to place the matter on a sound basis.

[1] THE LANCET, Oct. 22nd, 1910, p. 1200.

OPHTHALMOLOGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL evening of this society was held at the Medical Society's rooms, Chandos-street, W., on Nov. 10th, under the chairmanship of Mr. GUSTAVUS HARTRIDGE, Vice-President.

Mr. G. WINFIELD ROLL showed a case of Sympathetic Ophthalmitis which had recovered. The patient was a boy who had his cornea wounded by a jagged piece of china, and sympathetic ophthalmia ensued six weeks from the original injury. Atropine and hot fomentations were applied, and mercury was given internally. He had now 6/12 vision in the sympathising eye, while vision in the eye originally injured was 6/36. No intra-ocular injections had been used.

Mr. GEORGE COATS showed a series of slides illustrating Atypical Coloboma of the Iris and Lens, with persistent mesoblastic strand. The case, he contended, favoured the theory of Hess—that coloboma of the lens was due to fibrous strands of that sort. Not only the vitreous and the retina showed changes, but the choroid also. It favoured the theory that atypical coloboma was due to pressure on the back of the eye of such persistent strands when the lens almost filled the globe. In the upper part of the eye there were certain areas of choroidal atrophy, although there was no persistent mesoblast. If found alone they would be taken for patches of old choroiditis, thus illustrating the difficulty which often arose in differentiating between a congenital abnormality and a patch of inflammation. That difficulty had given rise to the idea that true coloboma did not occur in the macula, whereas Mr. Coats thought it did. The changes in the fundus exactly followed the retinal vessels. Another interesting point was in connexion with the development of zonula; he favoured the mesoblastic origin. The cases upon which he based his remarks were mostly cases of aniridia.

Mr. W. H. H. JESSOP showed a case of Recurrent Melanotic Sarcoma of the Conjunctiva which was shown before the society seven years ago. At that date the tumour, but not the eye, was removed, and proved to be melanotic sarcoma. There was a recurrence in 1904, up to which time it had remained quiet, and there were only a few brown pigment spots. It was wandering pigment. In May, 1907, there was more congestion and then another swelling at the site of the old one. That recurrence was removed and the site cauterised. The patient came again in November, 1910, having had no pain and with vision 6/9, there being a small swelling under the upper lid. It was removed with the surrounding conjunctiva and found again to be melanotic sarcoma. Nothing more was now to be seen except two little patches. He had never seen a case of the kind last so long with such slight recurrences.—Mr. HARTRIDGE commented on the possibility of being more conservative with eyes the seat of such tumours.—Mr. E. TREACHER COLLINS alluded to three cases of epibulbar sarcoma which he had removed without taking away the eye, and there had been no recurrence, one of them having been done 20 years ago, and she had had the growth partly removed before he saw her. But that was not a melanotic growth but was definite sarcoma, as confirmed by Mr. Butlin.—Mr. E. W. BREWERTON believed that in Mr. Jessop's case the outlook was now less hopeful, and that a general metastasis was setting in, which would kill the patient. Something more should, he urged, now be done to the conjunctiva, and the brown pigment patches should be excised.

Mr. JESSOP also showed a case of Solitary Tubercle of the Choroid, in which there had been no vitreous opacities and very little pigmentation. The condition now looked like retinitis proliferans.

Mr. J. H. TOMLINSON showed a simple Projecting Polariscope for use in Testing Colour-perception, and illustrated it with a patient whose illumination perception was normal but colour-vision abnormal.

Dr. JOHN HERN showed a case of Kerato-irido-cyclitis. This condition he regarded as a clinical entity. The causation had puzzled him, but some of the patients had been syphilitic. In treatment he insisted on the value of peritomy, getting right down on the sclera by means of a small curette, to destroy the blood-vessels on the surface of the sclerotic. He usually tried treating such cases with mercury first.

Mr. N. BISHOP HARMAN showed Twin Scissors for Sclerotomy (Herbert's operation), which worked like a punch, but without punching anything out.

Mr. R. FOSTER MOORE showed three cases of Severe Loss of Sight following Hæmorrhage. One was hæmorrhage after miscarriage, another hæmatemesis, and the third prolonged bleeding from the eye.

Mr. H. E. JULER showed a case of Sarcoma of the Iris, the interest of which was that it might be cyst.—Mr. TREACHER COLLINS said the case was under his care, having been sent to him by Mr. H. H. Taylor of Brighton. He advised him, before sending the case up, to puncture it; that was done, but nothing escaped, and there was no alteration in the appearance of the tumour. He had been expecting to see the case.

Mr. F. HEWKLEY showed a case of Injury to the Eye. It was a degenerate eye, the sight having been lost during the last nine years.

Mr. R. R. CRUISE showed a case with Fibrous Mass over the Disc, which he believed to be the result of injury. There might have been a coloboma in the region of the nerve towards the lamina cribrosa, and the coloboma might have filled up with clot.—Mr. COATS believed it to be due to rupture of the nerve, but Mr. M. S. MAYOU took another view regarding the history of injury as simply a coincidence.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Nov. 11th, Dr. W. G Willoughby, the President, being in the chair.—Mr. A. W. Gant (borough dentist, Cambridge) introduced a discussion upon School Dentistry. After drawing attention to the great differences in the figures as to carious teeth which were to be found in the reports of school medical officers, he expressed the opinion that at least 90 per cent. of the children attending public elementary schools in this country had dental caries. He urged a more careful examination for the discovery of caries than it was practicable for a medical inspector to make. It was very necessary to discover the earliest traces of caries in the permanent teeth, and if the future well-being of the children had to be considered as well as the immediate present the ages for medical examination and re-examination would not suit dental investigations. In examinations where no treatment was going to be offered, and when advice was sent to parents only in extreme cases, the most suitable plan would be to make a primary division between the temporary and the permanent teeth. The temporary teeth could then be divided into three classes, signifying fair, bad, and very bad dentures, or the subdivisions for the permanent dentition could apply to this also. The children with permanent teeth should be divided into those whose teeth were fairly efficient, those whose grinding capacity was impaired on one side only, and those whose grinding capacity was impaired on both sides. The present system of noting the number of carious teeth at the best could only make a very imperfect division of the children and gave little guide as to how the function of mastication was being performed. A phase of inspection which Mr. Gant considered of great importance from a medical point of view was the presence of pus in the mouth, which could invariably be traced to its source at the roots of one or more teeth. He had found over 30 per cent. of the children he examined with pus discharging from septic teeth, and about 5 per cent. of these had oral sepsis in a most marked and dangerous degree. He considered it was indispensable that any dental treatment offered to school children should be related to the school medical service as a whole, and that the preliminary steps which must be taken with regard to dental treatment should rest with the school medical officer. He had little hope that the mere cleansing of teeth, however regularly done, would abolish dental caries. Nevertheless, it was certain that cleanliness in that direction would have an appreciable effect provided it could be practised from the time the first teeth appeared. Very little good could be expected from persuading the present-day elder children to use a tooth-brush, but efforts should be made towards teaching the "cult of the tooth-brush," more especially in the infant schools.—Dr. H Cooper Pattin said that in Norwich, contrary to the experience elsewhere, the parents appeared to be really anxious that their children should have dental treatment.—Dr. R. E. Lauder considered it was futile to expect parents to take their children to a dentist if they had to pay for the treatment, and he urged that preventive measures should precede treatment.—Mr. R. Denison Pedley expressed the opinion that the appointment of a school dental surgeon was one of the most important parts of preventive work. There was an enormous amount of preventive work to be done, but it was useless to expect parents to realise their responsibilities unless they had some knowledge of the necessity for treatment, and that knowledge should come through the teachers, who should be given an opportunity of gaining an elementary knowledge of dental work. The school medical officer as a rule knew little or nothing about the teeth owing to the fact, which was to be deplored, that conservative dental work was not carried out in general hospitals.—Dr. Andrew J. Laird referred to the desirability of the dental inspections being made by dentists, and preferably by those who would subsequently carry out the treatment. He advocated the early use of the tooth-brush, and if possible before school age.—Dr. A. H. Bygott declared that the best teeth among the poorer classes were to be found among those who came under the care of boards of guardians, and thought it a great pity that a child had to be a pauper before its teeth could be good. He did not consider the tooth-brush was so necessary as some persons had stated.—Dr. Sidney Davies urged the importance of educating people in the proper methods of feeding, and thought that dentists might render assistance in recommending a practical diet which as far as the teeth were concerned would be self-cleansing.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—A meeting of this society was held on Oct. 7th, Professor R Muir, the President, being in the chair.—The President reviewed briefly the chief stages of research which had led up to the discovery of the Wassermann reaction.—Dr. C. H. Browning explained in detail the method of the reaction, and stated that at present there was no possibility of the test being satisfactorily carried out except in specially equipped laboratories by experienced workers. As to the specificity of the reaction, positive results had been obtained in other protozoal diseases besides syphilis (frambœsia, sleeping sickness), and in leprosy of the tuberous type. Except in these conditions positive results were very rarely obtained with non-syphilitic sera. In untreated acquired syphilis the Wassermann reaction was present only exceptionally before, and usually from 15 to 30 days after the appearance of the chancre. In the secondary stage 95 per cent. of cases, and in the tertiary stage 75 per cent., were positive. Of cases in which the disease had passed into a latent stage 50 per cent. reacted positively, and a similar percentage of positive results had been obtained in women who had, in accordance with the law of Colles, borne syphilitic children without themselves exhibiting symptoms of the disease. No limit could be set to the date after infection at which a positive reaction might be obtained; cases had been found to react positively 40 or 50 years after the original inoculation. The clinical significance of a positive reaction was that it indicated that dissemination of the virus had occurred and that the living virus was probably still present, though not necessarily infective; tertiary lesions, for example, were usually non-infective on account apparently of the small number of spirochætæ which they contained. The diagnostic value of the reaction was evident in determining the specific nature of atypical lesions—e.g., apparently non-syphilitic soft sores, of extra-genital sores, and of manifestations of the disease in cases where primary and secondary symptoms had been suppressed. As a means of diagnosis the reaction was supplementary to the examination for spirochætæ, and where these were scanty, as in tertiary lesions, it was alone available. It had also shown the syphilitic nature of cases of primary aortic disease, of leukoplakia, and of various cerebral lesions. As to the effect of treatment on the Wassermann reaction, the general result was that energetic mercurialisation early begun and long continued restored the serum to its normal condition, and only by such treatment could late manifestations be prevented. Treatment should also be adopted in latent cases giving a positive reaction, in view of their tendency to relapse and of their infectivity. In all cases treatment should be continued as energetically as possible for a prolonged period after the disappearance of all symptoms, including the Wassermann reaction. Thereafter at intervals repeated tests should be made, and the reappearance of a positive reaction should indicate the necessity for immediate resumption of treatment.—Dr Ivy Mackenzie referred to the observations of Dr. W. Gilmour of Gartloch Asylum, who obtained a positive Wassermann reaction with the blood of 98 per cent.

of 180 cases of general paralysis, and of 70 per cent. of 22 cases of locomotor ataxia. The cerebro-spinal fluid gave a positive reaction in 40 out of 68 cases of general paralysis, and in two out of six cases of locomotor ataxia. Referring to dioxydiamidoarsenobenzol she gave details regarding the drug, methods of administration, dosage, effects and excretion. In nine cases of recent syphilis in Maryhill Barracks the injection of one dose had immediately beneficial effects, the patients being dismissed from hospital within a fortnight free from any evidence of disease. Of 16 cases of general paralysis treated with "No. 606" four were undoubtedly benefited. From being restless, stupid, dirty in habits and difficult to manage, they had become sensible, quiet, intelligently interested in their surroundings, and able to work in the wards on their own initiative. In two of them there was a marked retrogression of the physical signs, and one patient was ready for dismissal.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of this society was held on Nov. 10th, Dr. T. R. Bradshaw, the President, being in the chair.—Dr. Hubert Armstrong showed two babies, aged 5 and 7 months respectively, with Obliquity of the Cranium due to suckling at one breast only, and read a note on Cranial Asymmetry in Infants due to Postural Causes. Special reference was made to the mechanical causation of the rickety head and of the lateral deviations in congenital torticollis and the class of case exampled by the patients exhibited.—Dr. Alexander Stookes read a paper on Puerperal Eclampsia, with Especial Reference to the Causation and Treatment. He mentioned various statistics with regard to its occurrence, and considered the theories of its causation, whether due to intestinal absorption or renal diseases, or whether the cause was to be sought for in the ovum. He described several cases recently seen by him and discussed in detail the treatment that he advocated.—Dr. Arthur J. Wallace alluded to the use of veratrum viride, which reduced the pulse-rate down to 60 per minute. It had been shown that when the pulse-rate was low the fits rarely occurred. He recommended the veratrone of Parke, Davis, and Co. for this purpose.—Dr. H. Leith Murray said that as a result of some recent observations of his he was unable to find any placental cause for the condition.—Dr. O. T. Williams read a paper on Cod-liver Oil. He recalled the work that he and others had done on the influence of the oil upon the tubercle bacillus and upon the nitrogen metabolism and fat retention in phthisis. In diabetes phthisis was frequent, and this disease showed a diminution in the amount of unsaturated fats in the blood. In the first 50 years of the last century great advances were made in the treatment of phthisis, but the last 50 years did not show a proportional advance. All the authors of 50 years ago spoke very highly of the effects of the oil, but now it was rarely mentioned. Clinical and scientific reasons were presented for its greater use. The analyses of five oils were shown. The oil contained a very highly reactive unsaturated acid, having 18 carbon atoms and four double bonds. The fatty acids from the oil easily polymerised. The effects of oxidation were shown. The best oil was the least oxidised and contained by far the most unsaturated acids. It was prepared in an atmosphere of carbon dioxide and was nearly hydroxyl free. The oil acted in virtue of the peculiar unsaturated acid contained in it and not through the small quantities of the so-called active principles.—Several members then discussed some of the aspects of the treatment of phthisis.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on Nov. 2nd, Mr. Stanmore Bishop, the President, being in the chair.—Dr. G. E. Loveday gave a communication on the Indian Ink Method of Demonstrating the Spirochætæ. The chancre, which should have had no treatment for two or three days previously, was washed and dried; the edge was abraded with a sterile instrument; and serum was squeezed out and a drop mixed with water and Indian ink in equal proportions. The mixture was spread in films on a slide, allowed to dry, and examined directly under the oil-immersion lens. The spirochæta pallida appeared white on a brown ground. Cells present showed up and served to indicate the size of the spirochætæ. Other methods were staining, which was unsatisfactory, and the dark-ground illumination method. This required a special condenser and some experience, but had the advantage of showing the characteristic movements of the spirochætæ. The simplicity and reliability of the Indian-ink method recommended it. Secretion from a primary sore hardly ever failed to show the spirochætæ. Spirochæta pallida must be distinguished from other spirochætæ, especially spirochæta refringens. The latter was, however, rare in the secretion from non-ulcerated chancres, and it was thicker and had fewer turns to its corkscrew than the spirochæta pallida. Since the Wassermann reaction was negative in 40 per cent. of cases of syphilis at all periods of the primary stage, the search for the spirochætæ in doubtful cases was valuable. Spirochæta pallida was found in mucous plaques, almost always in untreated chancres, usually in the papular syphilide, and only occasionally in juice and scrapings from glands and very seldom in macular or roseolar rash. Specimens of spirochætæ were shown by this Indian-ink method.—Mr. J. Arnold Jones communicated Some Points in the Diagnosis and Treatment of Acute Suppuration in the Frontal and Maxillary Sinuses. After a brief reference to the anatomy of the parts and to the etiology, the symptoms and differential diagnosis were discussed. It was pointed out that in these cases periodic attacks of neuralgia (mainly affecting supra- and infra-orbital nerves), as accurate and regular in their periodicity as in malaria, might occur. The main lines of treatment in antrum cases were: (*a*) washing out the sinus and puncturing the nasal wall in the inferior meatus with a straight hollow needle; and (*b*) endeavouring to establish drainage through natural ostia by applications of cocaine and adrenalin, followed up by menthol inhalations. In frontal sinus cases the same measures were resorted to for the establishment of drainage, which if ineffectual in 12 or 24 hours should be followed by amputation of the anterior end of the middle turbinal. Extra-nasal operation was rarely necessary in acute cases. Illustrative cases from Mr. Jones's practice were quoted.—Mr. J. Walters read a paper on the Practice of Psycho-therapeutics. After a brief historical retrospect, the various methods of inducing hypnosis were explained and special stress was laid upon the methods of Bramwell and Sidis. A description of Mr. Walters's own method followed. He had employed this method in about 200 cases and had come to the conclusion that a state of distraction or very light hypnosis was the best. The chief factor of this state undoubtedly was "pre-adjustment," the patient being placed in the most suitable condition to receive and to maintain the suggestions given. This was aided by reinforcement (or inhibition), repetition, and the restfulness of the state itself. Cases were cited proving the efficacy of the method in somnambulism, alcoholism, neurasthenia, the obsessions, and insomnia.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 4th, Dr P. S. Abraham, the President, being in the chair.—Before the work of the evening commenced the Keetley memorial medal, founded by the society for presentation to each president at the termination of his year of office, in memory of the late Mr. C. B. Keetley, founder of the society, was presented to Colonel T. Holbein Hendley, C.I.E., I.M.S., ex-president.—Dr. F. S. Palmer showed a case of Progressive Muscular Dystrophy, pseudo-hypertrophic type, in a boy aged 6 years. By careful inquiry no history could be obtained of nervous or mental disease in the family or its collateral branches. He had whooping-cough when four years of age, and since then had developed the typical features of his disease.—Dr. Palmer also showed a case of Myasthenia Gravis in a man, aged 41 years, with distinct wasting of facial muscles, particularly orbicularis palpebrarum, masseters, and buccinators.—Dr. T. Grainger Stewart remarked on the unusual mode of onset and the great wasting of the facial muscles. Replying to the President, Dr. Palmer said he believed that no constant pathological changes had yet been discovered in the central nervous system.—Dr. E. Arthur Saunders showed a case of Diabetes in a boy aged 5 years. No family history of glycosuria was obtainable. He had passed over 2000 grains of sugar in a day. Under dietetic treatment all sugar disappeared from the urine.—Dr. Henry Barnes mentioned the occurrence of diabetes in twins.—Dr. Reginald Morton showed skiagrams of a case of Congenital Syphilitic Disease of the Elbow-joint. In one, taken before treatment, no bony outline could be detected at the site of the joint; in the second skiagram, taken after four months' treatment, the bony outlines of the joint were clearly defined.—Dr. N. Bishop Harman showed a case of early Conical Cornea in a woman

aged 28 years. Evidence in this case showed that the condition had remained stationary for several years under treatment.—Dr. Bishop Harman also showed a case of Chronic Glaucoma relieved by Double Sclerotomy occurring in a woman aged 64 years. He showed also an instrument made for him by Messrs. Weiss for this operation.—Dr. S. D. Clippingdale showed a case of Conical Cornea.—Dr. T. Grainer Stewart showed a case of Exophthalmic Goitre and Syringomyelia in a female, aged 20 years, a typist, the chief point of interest being the involvement of the seventh cervical segment on the left side and its escape on the right, seen on both sensory and motor sides.—The President remarked upon the close resemblance of some cases of anæsthetic leprosy to syringomyelia; in one case of the supposed latter disease the bacillus of leprosy had been found.—Dr. Harold Pritchard showed a case of Transposition of Viscera with Congenital Heart Disease in a child aged 12 months.—Dr. Saunders said, as to the prognosis in congenital heart disease, this was more favourable in the pale than in the blue cases.—Dr. Seymour Taylor suggested that bismuth should be given so as to reveal by X rays if the stomach was transposed, and an enema of bismuth might reveal by the same means whether the sigmoid flexure and descending colon were on the right side of the abdomen.—Mr. W. McAdam Eccles and Mr. Frank Savery joined in the discussion.—The President showed: (1) Two cases of Multiple Keratosis in children. Solid CO_2 had been successfully used in these cases. He alluded to some cases in which there was some evidence of heredity. (2) A young woman with extensive Erythematous Lupus. (3) A case of X Ray Dermatitis in a young girl who had been treated for ringworm.

MANCHESTER PATHOLOGICAL SOCIETY.—A meeting of this society was held on Nov. 9th, Mr. Alex. Wilson, the President, being in the chair.—Dr. W. Mair read a paper on Enlarged Thymus and Sudden Death, and described seven cases of lymphatism in which he had made post-mortem examinations.—Dr. A. Hill Griffith described three cases of Tumour of the Optic Nerve which on microscopical examination proved to be respectively an endothelioma, a sarcoma, and a lymphangeioma.—Dr. J. Arnold Jones described a case of Antro-nasal Polypus.

Reviews and Notices of Books.

The Practice of Midwifery. Being the seventh edition of Dr. Galabin's "Manual of Midwifery," greatly enlarged and extended by ALFRED LEWIS GALABIN, M.A., M.D.Cantab., F.R.C.P. Lond., and GEORGE F. BLACKER, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng. Illustrated with 503 engravings, many of the new illustrations specially drawn by T. W. P. LAWRENCE, M.B. Lond., F.R.C.S. Eng. London: J. and A. Churchill. 1910. Royal 8vo, pp. xxxi.–1123. Price 18*s.* net.

DURING the last 23 years Galabin's "Practice of Midwifery" has passed through six editions, and this in itself is a testimony to the value in which it is held by medical practitioners. The seventh and latest edition has been much enlarged, so that whereas in 1886 the Manual consisted of some 800 pages, this number is now increased by 40 per cent., whilst the size of the page is a good deal larger. The present edition has been thoroughly revised and to a large extent rewritten. In this undertaking Dr. Galabin has had the able assistance of Dr. G. F. Blacker and the work has been very thoroughly done, in fact "The Practice of Midwifery" is, in our view, the best text-book on the subject yet published by British authors.

The subjects that have been chiefly revised are the development of the ovary and of the early ovum, the physiology of the fœtus and of the puerperal state, the mechanism of labour, the lower uterine segment, the pathology of eclampsia, hydatidiform mole, accidental complications of pregnancy, narcosis in labour, vaginal and extra-peritoneal Cæsarean section, and pubiotomy. A new chapter has been added on injuries and diseases of the fœtus. All this has entailed an addition of some 200 pages to the sixth edition. The treatment of "accidental hæmorrhage" is perhaps the least satisfactory part in the book since it is difficult to discover what the real opinion of the authors is on this subject. In former editions Dr. Galabin condemned the treatment of plugging the vagina. In this edition the authors state that "experience appears to justify this treatment, which is now generally accepted," but find that "the statistics of the results of treatment by plugging are very slightly better than those of the old method," this slight gain being due to the improvements in antiseptic midwifery, while they ask us to remember "that the treatment is a dangerous one in unskilful hands if either the plugging is not effective or antisepsis not fully maintained," and "that it is only available when the membranes are unruptured." From a perusal of all this it seems to us that the student might well be excused if his answers at the examination failed to satisfy the examiner.

The book is beautifully printed on excellent paper and the new illustrations by Mr. T. W. P. Lawrence are very good, and in these respects the seventh edition is far in advance of any that preceded it. In other ways than those which have been mentioned the manual has been brought well up to date and an examination of any section will show that the revision has been complete, while from the title page it would appear that Dr. Blacker is to be regarded as joint author. It would be as well, therefore, in future editions to eliminate the personal pronoun which is found to be so freely scattered in this edition. We presume that "I" when used refers to Dr. Galabin, but this is only presumption, and it may be that sometimes it refers to Dr. Blacker.

The authors and publishers may be congratulated on the production of such a handsome and complete treatise on the science and art of midwifery.

Diagnostic Methods, Chemical, Bacteriological, and Microscopical. A Text-book for Students and Practitioners. By RALPH W. WEBSTER, M.D., Ph.D., Assistant Professor of Pharmacological Therapeutics and Instructor in Medicine in Rush Medical College, University of Chicago, &c. London: Rebman, Limited. 1909. Pp. 641. Price 26*s.* net.

MANY as are the occasions in medical practice in which help has to be sought from the clinical laboratory, yet the full debt owed to this institution is scarcely realised until the appearance of some such volume as that now before us, which collects together the multitude of procedures at present available for the investigation of disease. The first chapter is devoted to examination of sputum, and the characters of the secretion, macroscopic and microscopic, and the objects to be looked for in it are first described, and then special consideration is given to the sputum seen in different diseases respectively. Chapter II. deals with oral, nasal, aural, and conjunctival secretions; and we note that the recently described "Prowazek-Greeff bodies" in trachoma are described and depicted. Examination of the gastric contents occupies Chapter III.; the various tests used are described very fully, the conditions found in different gastric disorders being separately considered. In Chapter IV. the fæces are dealt with, and this leads by a natural transition to a discussion of parasites in Chapter V. Nearly 200 pages are devoted to the examination of the urine in Chapter VI. We note the author's preference for a means of estimating sugar, known as Purdy's method, in which glycerine takes the place of ammonia in the copper test solution; also his belief that Russo's test (methylene blue) is of value in the diagnosis between enteric fever and general tuberculosis. A short chapter is devoted to the secretions of the genital organs, and then a long chapter of over 200 pages is given to the examination of

the blood. Some useful illustrations are given of the curious ring-shaped and other bodies sometimes seen in the red corpuscles, which may easily give rise to mistakes. The last two chapters deal with transudates and exudates, and with the secretion of the mammary glands.

The book appears most complete and exhaustive. It is copiously illustrated, many of the pictures being in colours and the majority well reproduced. It could hardly be expected that all the many sides of the subjects treated of would be equally well done, and we think the chemical part of the book is perhaps stronger than the rest. But the standard of the sections on physical and microscopical examination is by no means a low one, and we congratulate the author on the care with which he has compiled his information and the skill with which he has arranged it. A certain amount of matter is included which is hardly a part of diagnostic method, such as the etiology of certain conditions, the dosage of vaccines, and a short account of Ehrlich's theory of immunity. There are a good many printer's errors scattered about, such as "oligema," "anerobic," "trichiurs," "distomum couns" (canis?); and mistakes such as "spirochaete pallidae," "this extracted feces." The writing is also careless in places, as in the sentence: "This test has very much the same relation to the detection of sugar in the urine as does Heller's nitric acid test towards albumin in the urine." There is an adequate index.

LIBRARY TABLE.

The Pathology of the Living and other Essays. By B. G. A. MOYNIHAN, M.S. Lond., F.R.C.S. Eng. London and Philadelphia: W. B. Saunders Company. 1910. Pp. 260. Price 10*s.* net.—This is a reprint of a number of essays which have appeared during the last few years in various medical periodicals, and many of them are certainly deserving of republication. The title essay treats of the question of the pathology of the abdomen disclosed at operations, as contrasted with the pathology found at the necropsy, and many useful hints are given as to the misunderstanding of abdominal symptoms which may occur from a want of appreciation of the true explanation. Several of the other papers are of almost equal interest, and we would mention specially the article on the "mimicry of malignant disease of the large intestine," for there is little doubt that many cases in which a mass is felt in the colon are of chronic inflammatory origin and are not malignant.

Les Formes Larvées du Paludisme: Diagnostic et Traitement. By Dr. BASILE MOUSSÉOS. With 18 illustrations. Paris: Vigot Frères. 1910. Pp. 144. Price Fr.3.50.—Dr. Mousséos has had a long experience of malaria during his 20 years' residence in a malarious district in Asia Minor. He adopts the classification of the disease into (1) intermittent fever, (2) "fièvre larvée," and (3) malarial cachexia. He compares paludism to a tree, of which intermittent fever is the root, *fièvre larvée* the trunk, and the malarial cachexia the branches and fruit. The term "*les fièvres larvées*" is used generally by French writers to denote "different affections of a periodic character, having a course more or less obscure, presenting some analogy with intermittent fever, and yielding to similar treatment." The book comprises six chapters, in the first of which the plasmodium in its various forms is described as also the author's method of examining the blood of a malarial patient. In the next he gives a description of *fièvre larvée*, with illustrative cases, and discusses how it may be diagnosed. The third chapter is a consideration of the value of quinine in combating the plasmodium in *fièvre larvée*. The "plasmodic toxæmia" forms the subject of the fourth chapter, and this is followed by one on hæmoglobinuria. In the last chapter the author gives his general conclusions. Referring to his modes of treatment, he says that the only objection is the large number of injections necessary in treating a case of malignant fever or a malarial cachexia. But to meet this he has had prepared at the laboratory of the "Pharmacie Centrale de France" a product which contains all his medicaments "difficilement synthétisés." The work is dedicated to Professor Laveran, and Dr. Alexandre Cawadias contributes a preface. The book is interesting, being written in a style which at once secures the reader's attention.

A Natural Method of Physical Training. By EDWIN CHECKLEY. London: T. Werner Laurie. 1910. Pp. 174. Price 1*s.* net.—The author believes that there is more "straining" than "training" in a good many popular systems of physical development. The method he advocates does not require any apparatus, and "will build up the frame of the slender and reduce the unwelcome proportions of the corpulent without the employment of machinery or harsh and weakening methods of dieting." The main point in Mr. Checkley's view appears to be the learning to breathe properly; "to learn to breathe is to learn the A B C of physical health." Various exercises are described for developing the muscles and joints, and advice is given as to the general carriage of the body. The author's views are mainly rational and the exercises described are likely to improve the muscular development, the respiratory capacity, and the general health. In reference to the physical training of girls, "ludicrously guarded against exercise that they need as greatly as boys," his arguments do not apply to the conditions of female education that obtain at present, although they would have been to the point 20 years ago. The last chapter of "Hints and Suggestions" contains good advice, and except for the peculiar views the author entertains as to the mechanism of respiration and the curvature of the spinal column, the suggestions in the book are sensible and practical. The work is written in a loose style and the spelling is the author's own, where it does not follow American usage.

JOURNALS AND MAGAZINES.

Edinburgh Medical Journal.—In the current number of this journal Professor David MacEwan discusses Bier's treatment by venous hyperæmia, which he finds useful in open tuberculosis and in acute circumscribed inflammations, such as carbuncles, abscesses, and bursitis. Professor James D. Heard writes on the significance of transient cerebral crises and seizures as occurring in arterio-sclerosis, and quotes the various views that have been held as to their pathology; and Dr. W. E. Foggie records a case of congenital dextrocardia, with "cor triloculare biventriculare." Dr. J. D. Comrie and Mr. J. S. Fraser report the results of their experience in the examination of the sphenoidal sinuses in 50 cases, and note the need for microscopical as well as naked-eye examination to determine the actual existence of inflammatory changes. Dr. H. Ruthven Lawrence points out the advantages of scopolamine-morphine as an anæsthetic in maternity practice.

The Medical Chronicle.—In the October issue is published the first part of a valuable thesis by Dr. Robert Lakin on the Blood and Urine in Cardiac and Renal Dropsy. He concludes that cardiac dropsy is purely mechanical, there being no plethora or hydræmia; whereas in renal disease there is hydræmia, which is not, however, the cause of the œdema. He comes to no definite conclusion as to the relationship between retention of chlorides and œdema. Dr. R. T. Williamson gives an account of the proceedings at the Third International Congress on School Hygiene, held in Paris, 1910; and Dr. Robert E. Lord records a case of perforation of a typhoid ulcer in a boy, aged 11 years, with recovery after operation.

The Birmingham Medical Review.—In the September issue of this review Dr. J. Douglas Stanley writes on Phthisis and the Municipal Sanatorium, emphasising the importance of after-care of patients whose disease is apparently arrested. Dr. James E. H. Sawyer discusses bruits heard over the manubrium sterni in children, and concludes that they are formed in the jugular veins and conducted in the direction of the blood-stream, and that they are of no pathological significance.

The West London Medical Journal.—Perhaps the most interesting paper in the October number of this magazine is that by Dr. A. Elliot, in which he records two cases of acute hæmorrhagic pancreatitis. In one case no gall-stones were present, and in the other only a single large stone in the gall-bladder, which could hardly have been the cause of the trouble. Dr. J. A. Coutts comments on pyloric stenosis in infants and narrates two cases, both of which ended fatally, one after and the other without operation. Mr. N. Bishop Harman summarises his experience of the Wassermann reaction as an aid to diagnosis in ophthalmic work and expresses a favourable opinion as to its value; and Dr. Phineass S. Abraham discourses pleasantly on specialists and specialisms.

Jahrbuch für Kinderheilkunde. September, 1910.—In this number Dr. Martin Thiernich writes on the subject of suppurative diseases of the kidneys and urinary passages during infancy; his article is illustrated with clinical cases. Dr. Eva Hoffmann contributes an article on fat absorption in infants and methods of estimating the pancreatic ferments in the fæces. She concludes that the diastatic ferment is better than the tryptic as a criterion or index of pancreatic efficiency. Dr. Franz Topovski gives interesting details of a case of maldeveloped intestine in an infant simulating congenital hypertrophic pyloric stenosis. The cæcum and appendix were dislocated in an aberrant position over the stomach in such a way that they exercised pressure on the pyloric end of the stomach and induced an intractable condition of vomiting.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

ARCHENA WATER.

AMONGST the health resorts and watering-places in Spain which deserve a wider patronage than they have hitherto received is Archena, which is situated in a beautiful valley on the right bank of the Segura river. The waters are thermal and consist of a solution chiefly of the alkaline salts of soda, including sodium sulphate, sodium carbonate, with carbonates and sulphates also of lime. The gas dissolved in the water contains sulphuretted hydrogen. We have made an analysis of the water, and in spite of the time which had elapsed since the sample was taken at the source we found sulphuretted hydrogen present. Further analysis showed that the water was only slightly mineralised, the total salts amounting to 3·74 grammes per litre, including the salts mentioned above. There were traces of other salts present, including iodides. We learn from Dr. W. H. Russell Forsbrook that the establishment at Archena contains a complete installation of baths, and includes swimming baths, shower and dry vapour baths, spray applications, inhalations, and other hydro prescriptions. There are excellent social attractions provided also. The water issues at a temperature of 132° F. and is used both for external application and for drinking purposes. Dr. Forsbrook reports that very satisfactory results are obtained from the use of the waters in muscular rheumatism and gout, neuritis, neuralgia, sciatica, lumbago, neurasthenic joint trouble, and in the stiffness of joints arising from old injuries, and especially in osteo-arthritis, in cutaneous skin diseases, and in chronic catarrh of the mucous membranes. The sanitation and the dryness and temperature at all seasons have received favourable observations. Archena is reached from Paris *viâ* Perpignan, Barcelona, and Valencia, and is about 59 hours' journey from London.

CERTIFIED COMPLEXION SOAP.

(ARMOUR AND CO., LIMITED, ATLANTIC HOUSE, HOLBORN VIADUCT, LONDON, E.C.)

The addition to soap of hamamelis virginica seems to us to be a suggestion of some value, inasmuch as witch hazel has a distinct reputation as an elegant astringent and hæmostatic. The soap, of course, is cleansing and the hamamelis serves as a healing application to a broken skin. The extract has thus been used for chapped hands, chilblains, and for skin roughened by exposure to weather. Complexion soap we found was a good firm white opaque tablet, delicately scented and economical in use. It is highly milled and practically free from moisture. There was no evidence of free alkali present. The soap is soothing and pleasant to use, and we have formed a good opinion of it.

MEDICATED THROAT PASTILLES.

ALLEN AND HANBURYS, LIMITED, 37, LOMBARD-STREET, LONDON, E.C.)

Two pastilles submitted to us are the basis of two excellent formulæ for application in affections of the throat. The pastilles are transparent and dissolve slowly, ensuring a prolonged application of the medicaments, which are admittedly useful in certain irritable conditions. The first formula includes formaldehyde and menthol, which form a stimulating, antiseptic, and expectorant combination of use in hoarseness and sore-throat. The second pastille contains formaldehyde and cinnamon oil, which is an excellent formula for use in affections of the mouth, nose, and throat due to specific organisms. The demulcent effect of the basis in each case is a decided advantage.

RUSTIC ALE.

(BRANDON'S PUTNEY BREWERY COMPANY, LIMITED, TWICKENHAM, MIDDLESEX.)

This is a beer of small alcoholic value, on account of which it can almost be regarded as a temperance beverage, the alcohol found not exceeding 2 83 per cent. by weight or 3·55 per cent. by volume. The beer belongs to the class of light malt liquors of low gravity, the specific gravity of the dealcoholised beer being only 1017. The malt extractives, therefore, are, as we found, moderate in amount—namely, 4·46 per cent. The mineral matter amounted to 0 16 per cent. and the malt sugar to 2 28 per cent. We believe it to be a correct statement that this beer is brewed from malt and hops only, and in spite of its agreeable light character we could not trace the presence of any objectionable preservative.

CALMINE POWDER AND TABLETS.

(THE CROWN CHEMICAL WORKS, LIMITED, MARSH GATE LANE, STRATFORD, E.)

Calmine is a pure white powder which is soluble in water, and contains diethylbarbituric acid combined with sodium. It possesses certain advantages over the acid itself, which is commonly known as veronal or diethylmalonyl urea. It has a decided soporific action, and has been employed in cases calling for the relief of pain and in nervous affections generally, especially of the acute type. It has been used in epilepsy, hysteria, and mania, but should not be employed save under medical advice.

TONI-KOLA.

(AGENTS: THE VICTORIA WINE COMPANY, 12 TO 20, OSBORN-STREET, LONDON, E.C.)

The value of kola extract in fatigue and exhaustion is well known, and an excellent vehicle for its administration

—of course, under medical direction—is a sound wine. Our examination of toni-kola enabled us to confirm the presence of caffeine. The alcoholic strength of the wine is not excessive—not much more than that of claret; it amounted to 11·77 per cent. by weight. The total extractive matters amounted to 15·71 per cent., and consisted chiefly of grape sugar. Toni-kola is prepared in France, and is an example of the pharmaceutical skill commonly exhibited by the pharmacists of that country.

New Inventions.

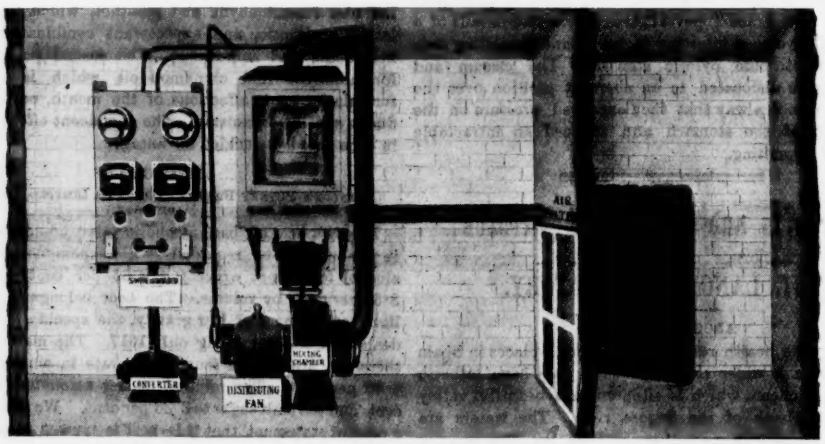
OZONE GENERATORS.

OZONE is a common constituent of pure unsullied air and owing to its powerful oxidising power its presence may be taken as indicating the absence of easily oxidised organic impurities. The pure air of the open country, the seaside, or of high altitudes which is prescribed for its vitalising influences invariably contains ozone which is, many believe, directly connected with the restorative powers of the pure atmosphere.

One thing, at any rate, is certain, and that is that the presence of ozone connotes pure air. This fact has led to the idea of applying ozone to the purification of air and to systems of ventilation. The suggestion obviously involves the use of efficient apparatus for the commercial production of ozone. The production of ozone by electrical discharge in the presence of air has long been known, but it has taken some time to bring forward an installation which could be trusted to discharge a stream of ozonised air free from oxidised nitrogen bodies. Nitrogen oxides, as well as ozone, are readily enough obtained when air is exposed to the influences of electrical discharge, but a careful study of the conditions under which these oxides are produced has enabled a differentiation to be made so that ozone can be produced to the exclusion of these impurities. This was the starting-point of the ozone generators of Ozonair, Limited, of 96, Victoria-street, Westminster, London, S.W., who now manufacture for a very large number of applications ozone generators which give ozonised air absolutely free from nitrogen acids. The generator applied to a system of ventilation and supply of pure air is demonstrated in the accompanying illustration. On the right in the illustration is the inlet chamber for the fresh air, which can be either cooled or heated in this chamber. The air is next drawn through the filter, which frees it of all suspended matter, smuts, and so forth, and at the same time absorbs such soluble gases as ammonia and sulphurous acid, which are commonly present in the air of large towns. The position of the distributing fan, switchboard, and ozone plant are obvious in the illustration, and the whole plant is operated by two regulating switches on the switchboard. The amount of air passing and the proportion of ozone within certain limits can be regulated at will. The air so obtained imparts a delightful refreshing sensation, is cool, and is most comfortable in respiration. The apparatus with due precautions relieves the air of all oppression and stuffiness, and hence the appreciation of it in crowded places, churches, public halls, theatres, clubs, workshops, steamships, and so forth. Modifications of the apparatus are made to meet the requirements of variable atmospheric or climatic conditions in order to ensure, in spite of variations of pressure, temperature, and degree of moisture, the steady production of an air ozonised to a definite point.

The Ozonair system has been adapted to the sterilising of water. To be effectual this method must provide for an intimate contact of the ozone with the water, and so the water is first distributed in the form of fine spray which impinges upon the upper part of a pile of glass spheres, through the interstices of which the stream of ozone is caused to ascend whilst the liquid, already partially ozonised and sterilised, descends over the surfaces of the spheres in a very fine film. Finally, after leaving the ozonising pile, the water is discharged in fine jets through ozone. The apparatus effecting all this intimate contact of the water with ozone is most ingeniously designed, and it is not surprising to find that the ultimate effluent is sterile, free from organic impurities, and blue like a mountain stream.

Ozone apparatus has also been designed for the bleaching of various articles, and considerable success is attending these experiments, even on the commercial scale, while experiments also give promise of ozonised air being successfully used in the preservation of meat. Experimental plant for laboratory and medical and surgical purposes are being manufactured, and here there is an interesting field for investigation which is very materially helped by the fact that by merely switching on the electric current an unlimited ozonised air-supply may be obtained for the purpose. The types of ozone generators, in short, are as numerous as their possible applications.



EASTBOURNE AND ITS CORONER.—The town of Eastbourne becomes a county borough on and from April 1st next. The whole question of the adjustment of the financial relations between the county of East Sussex and Eastbourne has been considered by a specially appointed committee which has recommended, among other matters, that until the death, resignation, or removal from office of Mr. George Vere Benson, and until a coroner is appointed for the borough, Eastbourne shall continue to be within the district of the county coroner as if the same had remained in the county of East Sussex. The county council at its meeting on Nov. 8th ratified the recommendation.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 19, 1910.

The Suffolk Epizootic of Rat Plague.

THE fact that it is now nearly two months since any suspicious cases of human plague occurred in East Suffolk should in material degree reassure the public that the chances of man being attacked are small, more particularly so when regard is had to the inhibiting effect of the approaching winter. An active crusade against rats has been in operation for some time past, and has resulted in the weekly destruction of thousands of these vermin and their attendant fleas, any of which may have been carriers of plague bacilli, and outside the dwelling the risk of infection through the flea in this country is not one to give rise to much anxiety. As yet we are not apparently quite clear as to the extent of the invaded areas, but Local Government Board inspectors are, we know, visiting districts in Suffolk and Essex with a view of determining this important point. This is obviously the right line to pursue, but the negative side of the inquiry presents difficulties, as it will be hard to establish the absence of rat infection in any given district. For the most part the local landowners and tenants appear to be loyally coöperating with the authorities in the work of destruction, which naturally appeals to the farmers from an economical side altogether apart from its health aspects. If there are any backward or recalcitrant occupiers, and we have no doubt that there are many, they have been handed over to the authorities by the prompt issue by Mr. BURNS of the regulations relative to rat destruction, which would appear to confer upon the district councils ample power to enforce rat destruction throughout the whole of their areas. Doubtless the total extermination of rats is a difficult—some would say impossible—task, and we are not aware of any instance in which extermination has been accomplished over a wide area, whether in this or any other country. As vacancies are produced by wholesale death-dealing in one district so are they rapidly filled up by the invading hordes from adjoining areas, and equally the results of action in one area lead to dispersion of large numbers of rats into neighbouring districts. But this is no argument against a wholesale crusade against rats with the object of reducing these animals to their smallest proportions, and thereby diminishing as far as possible the chances of human infection.

Next to a war upon rats comes the important question of domestic cleanliness, which means freedom from insects. The history of plague shows that it invades the overcrowded houses of the unclean, in whose dwellings there are likely to be both rats and their fleas, so that all general sanitary precautions fight against the chances of infection. As is insisted upon in the recently issued memorandum of the principal medical officer of the Local Government Board, there are other steps to be taken by communities and health authorities besides the destruction of rats and their parasites. The experience of Glasgow shows that in this country plague in man can be easily controlled under conditions of efficient sanitary administration, and of this fact there can be little doubt. Things are not what they were 250 years ago, when what was known as the Plague of London occurred, since which time England has set an example to the whole civilised world in the matter of epidemiology and sanitary administration, and the country has been mapped out into sanitary areas each with its medical officer of health and sanitary inspector, while, more recently, county councils, with ever-increasing public health functions, have come into being. And in the matter of human plague, should there possibly be cases, the position is much what it would be were typhus or enteric fever or small-pox in question, and the key to control is embodied in the following points: (*a*) the prompt notification of all doubtful cases either of the bubonic or pneumonic type and the treatment of such suspicious cases administratively as plague until the reverse is demonstrated; (*b*) isolation accommodation for the patients and the observation of all contacts; and (*c*) facilities for preventive inoculation, and a supply of trained nurses to deal with cases of pneumonic plague. As the official memorandum observes, bubonic plague is the rule and pneumonic plague the exception, but it is the little nests of the latter variety which create proper alarm in invaded localities. Professor W. J. SIMPSON'S letter in our columns this week emphasises the fact that Europeans enjoy no immunity from plague, and the public feeling now surely is that into our campaign against rat plague, and our provision for such human cases as may possibly occur, no question of economy should enter. The damage done to agriculture in certain of the invaded districts by the refusal of customers to accept local produce must already have been enormous. There is, in our view, no justification for alarm in this sense, as the danger of the contraction of plague by ingestion is very small. This all the work by the Madras Plague Commission shows. But public confidence has to be restored, and if this necessitates the voting of money by Parliament to aid the local authorities in their efforts it would be well and economically expended. The primary duty of dealing with the situation no doubt devolves upon the local authorities, who should be urged by all available means to maintain the campaign which they have begun.

In many districts in rural areas here may be found part-time medical officers of health and unqualified sanitary inspectors, and in these cases their efforts ought to be supplemented by the temporary appointment of experienced officers. Special knowledge of plague is in no sense essential, since if all suspicious cases are forthwith isolated, and bacteriological investigation made, knowledge of ordinary infectious diseases should ensure the adoption of adequate precautions. No doubt the local authorities will be advised by the trained epidemiologists and administrators of the Local Government Board, and, with the aid of the county council local administrators,

they should prove equal to the occasion, the action of the Local Government Board in providing bacteriological testing being particularly useful. Considerable speculation has arisen as to the length of time during which this rat plague has been in existence in East Suffolk and as to whether anything approaching a similar state of affairs exists elsewhere unrecognised. No answer can as yet be furnished to these questions, but it should be borne in mind that the black rat (Mus rattus), which is the bearer of plague to this country, is apt to be introduced into this country through any shipping which bears cargoes, and especially cargoes of grain, from any of the plague-infected ports in South America, Russia, or elsewhere, a reflection which at once leads us to ask what is the distribution of rat plague in these countries and what steps are taken to ascertain whether rats from them are plague-infected or not. What we should much like to know is whether the rats in localities where there has recently been human plague have been demonstrated to be free from this disease. An investigation of this nature would reveal to us what is the real risk of the importation of plague rats into this country in face of the recognised difficulties of ensuring the destruction of rats on board ship or of preventing their access to the shore. Most of the resources for preventing the egress of rats from ships are less efficacious than was formerly believed, and the examination of the rats in certain of our ports has shown that by some means or other the black rat has found his way ashore. The consequent possibilities must be remembered.

Housing Regulations and Back-to-Back Dwellings.

THE regulations governing the inspection of districts under the Housing and Town Planning Act of 1909, now issued by the Local Government Board, contain several requirements which are of importance to medical officers of health and others whose duties bring them into relation with insanitary dwellings and unhealthy slum areas. The regulations aim at extending the practice of systematic sanitary inspection of dwellings, which has hitherto been followed by the more progressive of our local authorities, to all sanitary districts in the country. All urban and rural district councils are now required to arrange for the necessary inspections of dwellings to be made by or under the direction of the medical officer of health, who is periodically to submit lists of dwelling houses and areas in the district, early inspection of which is in his view desirable. The inspection is to be of a comprehensive character, and in addition to the determination of a series of questions specified in the regulations, is to include examination for any defects which "may tend to render the dwelling house dangerous or injurious to the health of an inhabitant." The Act of 1909 has placed local authorities in a better position to deal with questions affecting insanitary property by the issue of closing orders, the preparation of improvement schemes and like measures; and the regulations now require that these bodies should deal with reports as received from the medical officer of health, and record the directions which they give and the results of their action, reports on these matters being also transmitted to the Local Government Board. A considerable addition has thus been made to the responsibilities and work of district medical officers of health. The regulations should increase the authority of the medical officer when reporting upon insanitary houses and advising what should be done with them, though their issue will be held by many further to emphasise the importance of security being given to all medical officers of health in their tenure of office.

The Housing and Town Planning Act contains a clause, which gave rise to considerable controversy in Parliament forbidding the future erection of back-to-back houses as dwellings for the working-classes, and limiting the erection of tenement houses in which the tenements are placed back-to-back to buildings which the medical officer of health certifies to have sufficient available ventilation. The first of these provisions will effect an important change in the type of house built in several industrial towns in Yorkshire, where back-to-back dwellings, either in rows or in blocks of four houses together, have been erected in large numbers under the provisions of local Acts and by-laws. These houses have an undeniable advantage in the cheapness with which they can be built and let; but for many years, especially since the well-known report by the late Dr. F. W. BARRY and Mr. GORDON SMITH in 1887, on back-to-back houses, the drawbacks of this type of dwelling, in a sanitary sense, have been generally recognised. Rows facing north get little or no sunshine into any part of the house, while those facing south, having all the rooms exposed to the sun, may become intolerably hot; the rooms are conspicuously stuffy, while much inconvenience and nuisance result from the absence of a backyard and the position of closets and ashbins. The probability that a higher death-rate exists in houses built back-to-back, when compared with "through" houses in the same neighbourhood, was indicated for the town of Salford by Dr. J. W. TATHAM for the years 1879–83, and by similar statistical comparisons which have since been made in a few localities, notably in Shipley by Mr. HERBERT JONES, in Bradford by Dr. W. A. EVANS, and in Manchester by Dr. J. NIVEN. An extensive inquiry into the subject has now been made for the Local Government Board by Dr. L. W. DARRA MAIR, whose report, with an introduction by the Board's medical officer, has lately been issued as a Parliamentary paper (Cd. 5314). In order to avoid, as far as practicable, the many sources of error which are liable to arise in the comparison of populations for this purpose, Dr. DARRA MAIR extended his investigations over 13 industrial towns in the West Riding of Yorkshire in which back-to-back houses are common, and limited the comparison to houses in good structural condition situated in relatively healthy areas. With the aid of the medical officers of health concerned, the vital statistics of these houses were obtained for a ten-year period, and by means of special inquiries in each district material was obtained for the correction of death-rates for the age and sex distribution of the populations. The inhabitants of the "through" and "back-to-back" houses compared in the report were of the same class, with similar occupations and wages, though the rent of the "through" houses, averaging 5*s.* 6*d.* a week, was naturally

higher than the rent of the "back-to-back" houses, which averaged 4*s.* 6*d.* a week. The corrected average annual death-rate from all causes was found to be greater in the back-to-back houses than in the "through" houses to the extent of 15 per cent. When only those back-to-back houses built in continuous rows were taken for comparison the excess was still greater, amounting to over 20 per cent. Back-to-back houses in blocks of four, each house having means of side ventilation, showed an average annual death-rate similar to that in "through" houses. The outstanding causes of deaths, which produced the excess of mortality in the back-to-back houses, were pneumonia, bronchitis, and other pulmonary diseases (exclusive of phthisis), and diseases of defective development and malnutrition in young children. An excess of mortality in back-to-back houses from infectious fevers and from phthisis could also be traced, but these increments were less conspicuous than in the case of deaths from the causes above mentioned.

The chief sufferers from residence in back-to-back houses, it would appear, are infants and young children and old persons. In part, this probably results from the greater liability of both young and old to death from pulmonary diseases other than phthisis. The higher mortality in infants was also in large degree due to an excess of deaths certified as due to atrophy, debility, marasmus, convulsions, and teething. From the first three of these causes the mortality in the back-to-back houses stood to that in "through" houses in the proportion of 169 to 100; from the last two the ratio was 164 to 100. These conditions are associated on the whole more closely than any other group of certified causes of death with the effects of impaired nutrition, imperfect growth, and abnormal development of the young child, and it is scarcely to be doubted that in the earliest period of life the nature of the home, especially, perhaps, its facilities for obtaining fresh air and sunlight, exert a powerful influence on their production. The value of these statistical observations is increased by the fact that the broad conclusions which are indicated by a study of the figures in the aggregate are also supported by the figures for the individual towns in which the investigations were made, in practically all of which an excess of mortality was found to have occurred in the dwellings of the back-to-back group. The information obtained by Dr. DARRA MAIR is obviously capable of a wider application than to back-to-back houses in Yorkshire. The construction of many blocks of flats and tenements may usefully be considered in the light of this report, which should be of material assistance to medical officers of health in advising upon the wholesomeness of existing working-class dwellings and the type of houses which should be supplied in future building schemes.

Undergraduates and Behaviour.

IT is probable that the uses of the safety-valve were first discovered by administrators rather than by mechanicians. Wherever human beings were assembled together under discipline, experience must have shown, before long, to any who were placed in positions of authority, that the reins of that authority might from time to time be judiciously relaxed, and that the temporary excesses consequent upon the relaxation were eminently conducive to the general maintenance of satisfactory conditions of control. The French Admiral who, in 1870, was called upon to proclaim to the fleet at Brest the establishment of the French Republic, with its watchwords, "*Liberté, Égalité, Fraternité*," is said to have concluded his address by a reminder that "*La Liberté n'embarque jamais*," and it is abundantly clear that the fulfilment of the conditions thus indicated would be enormously aided by the possession and exercise of the freedoms which Jack ashore has always permitted himself, and which, in all maritime nations, have usually been regarded with indulgence, if not with absolute satisfaction. The various holidays of mediæval societies were often little more than periods of salutary emancipation from customary restraint, and the licence of tongue of the mediæval jester was often but a vicarious departure from the reticence commonly enforced upon the people. From quite ancient times, when the undergraduates of our universities lived under a sternness of discipline which their modern successors would not tolerate for a day, the authorities who controlled them were well aware that there must be occasions on which this discipline should be relaxed; and so it came about that the times of the public conferring of degrees were recognised as occasions of this kind—as seasons of chartered libertinism, during the continuance of which the undergraduates obtained a freedom of speech not ordinarily permitted to them, and the dons were compelled to listen to opinions, not always of a complimentary character, but which, nevertheless, it might often be good for them to hear. And so, during Commemoration at Oxford, or the corresponding festival at Cambridge, it often befell that the serious portion of the proceedings received but scanty attention from the undergraduates among the audience, and that their noisy humours diverted attention from the eloquence of the public orator. These humours in time were carried to such a point that, some five-and-thirty years ago, it became necessary at one seat of learning to disperse the disturbing elements, to remove the undergraduates from the gallery formerly allotted to them, and to distribute them among the general audience who were every year attracted to the scene.

The more or less humorous outbreaks at the older universities had once, as we have shown, some justification in history; and were originally the only opportunities possessed by the undergraduates of protesting against unpopular persons or enactments. In modern times, or in modern seats of learning, the students are placed under wholly different conditions, and have but slight excuse for attempts to maintain or to imitate customs which have lost their original meaning, and which, transplanted into new and strange surroundings, may easily become mere vulgar survivals of barbarism. It is therefore with much regret that we have recorded, in recent issues of THE LANCET, the misbehaviour of undergraduates at Bristol, at Edinburgh, at Dublin, and at Cork. At Bristol they had provided themselves with wind instruments and banners, and their interruptions are described as making up in noise for their deficiencies in point of wit. At Edinburgh some of the finest passages of Mr. WYNDHAM'S address were drowned by noisy interruptions from the top gallery. At Dublin both the address of Sir CHRISTOPHER NIXON and the ceremony of conferring degrees were interrupted by the rowdyism of a certain number of students. The climax of disturbance was reached at Cork,

where the undergraduates, not content with verbal insults, pelted the auditorium with paper pellets, with sugar, and ultimately with pieces of stinking herring, one of which narrowly missed a lady who was advancing to receive her degree, and actually struck one of the professors. It is said that an old Irishwoman, whose speech betrayed her, was once asked in London whether she did not come from Cork, and that her prompt reply was: "An how did your honour guess that? Was it by my good manners?" Her claim would once, we believe, have been completely justified by the prevailing customs of the locality; but "good manners" must long have departed from a region where hobbledehoys can pelt ladies with stinking fish, and be regarded by other hobbledehoys with tranquillity, or even with approbation. It is something to learn from our correspondent that the Cork students guilty of these outrages were "comparatively few," but it is certain that these few would not have ventured to act as they did unless they had felt secure of at least the passive acquiescence of those around them. In a more satisfactory state of public opinion they would have been silenced by their neighbours, even if they had not been ducked.

We are glad to say that there is no trace of evidence to connect the perpetrators of these vulgarities with the medical faculty of any one of the universities concerned. Something like BOB SAWYER may once have had a real existence; but he is now as extinct as the megatherium. The last serious attempt to resuscitate him was made some time in the seventies of the past century, in an unfortunate article in the *Fortnightly Review*, which, a reply to it having been refused insertion by the offending magazine, was soon afterwards dealt with as it deserved in the *Contemporary Review*. Since that date the gravity of the work of the medical student has been thoroughly recognised by all responsible writers, and the public has come to understand that the course of medical study compels its pursuers to lead a sober and steadfast life. The medical student of to-day, and, indeed, of many days gone by, is "serious in a serious cause," and is too conscious of the nature of the duties for which he is preparing to allow himself to be identified in any marked way with rowdyism. But in whatever faculty they may chiefly occur, the outbreaks to which we have drawn attention are much to be regretted, and it is difficult to suppose that some responsibility for them does not attach to the authorities of the universities concerned. If this be not the case, if they are merely the ordinary consequences of insubordination and of ill-manners, they point at least to a responsibility lying farther back, to a remissness on the part of those who were concerned with the earlier training of the offenders, or to impediments arising from a state of national feeling, comparable to that which undoubtedly exists in lower strata of the community. Our public elementary schools are turning out, year after year, too many children who, having learnt nothing by which they can immediately profit, have no desire for knowledge and no consciousness of its value, and who respect little, because they have not had their attention duly called to the things which are worthy of respect. If similar conditions are to affect also the classes who resort to our universities, the values of the degrees conferred by them will be diminished by the nature of the associations at the cost of which they will be obtained. "The Oxford manner" may have passed into a joke, but we still have the right to expect as a result of the highest form of scholastic training some outward and visible signs of the qualities which such a training may reasonably be expected to confer. Vulgar rowdyism can never lead the way either to the acquirement of knowledge or to the practice of the politeness which smooths away so many of the difficulties and rough places of the world, which costs nothing, and which yields so abundant a harvest to those by whom it is practised.

Annotations.

"Ne quid nimis."

ON THE POSITION OF MATERIA MEDICA IN THE MEDICAL CURRICULUM.

THERE was a time when it was very necessary for almost all medical men, especially for all in general practice, to possess a fairly full knowledge of materia medica. They had to recognise the plants from which were obtained the drugs they administered; they had to be able to decide whether the crude drug presented to them was exactly the drug they wanted or something bearing a close resemblance to it. They had to know the method of preparation of the infusions, the decoctions, and the extracts which were the forms in which these drugs were finally administered. They had to know the right temperature at which the preparations had to be made; the boiling points of liquids, the solubility of substances, and the tests for purity of the drugs employed by them. Therefore, in those days now long gone by, it was but reasonable for the student of medicine to be expected to possess a very thorough knowledge of the articles entering into the materia medica. They were questioned on the methods of preparation of the drugs; they were required to know, even to the smallest ingredient, the composition of the various compounds and the relative proportions of the several constituents. They had to recognise by sight a very large number of crude and refined drugs and of natural and prepared salts. They were required to be fully acquainted with the various tests which each substance was expected to pass, and some examining bodies even required, in addition, that the student should be acquainted with the natural orders to which the botanical specimens belonged. It was, on the whole, a dry subject, difficult to learn and remember, and many were the devices invented to enable the student to fix in his memory the constituents of some of the more complex preparations. The knowledge that was obtained with so much toil was at one time doubtless of genuine benefit, but long after the actual need for it existed the examining boards in this country persisted in requiring it of candidates. At last came a reaction. The increasing extent of the sciences ancillary to medicine claimed more and more of the student's time; a greater and increasing portion of his curriculum was demanded for the study of physiology, of chemistry, of physics and biology; and those with whom rested the preparation of the courses of study of medical students looked round to see which of the subjects studied could be most conveniently jettisoned, and threw over materia medica. Taught as it was then, much of it had become useless and obsolete. In the older scheme of study materia medica was linked on to therapeutics; the student was taught the value of certain drugs in the treatment of diseases of which diseases he had no knowledge either as to symptoms, pathology, or

etiology. Therefore for the most part the examining bodies decreed that while materia medica was to be done away with for all intents and purposes, therapeutics was to be given a later place in the medical curriculum. Of this arrangement we do not complain, but there is some fear that the reform in the matter of materia medica has been carried a little too far. We would by no means return to the former methods of teaching materia medica. With the enormous strain that at present exists on the time and attention of the student of medicine it is hopeless to attempt the reimposition of such a dead-weight as was the old materia medica. But there is a middle course. We consider it would often be good for the student to have a wider knowledge of the substances he employs. It would give him a more exact idea of what he prescribes; it would free him from over-dictation at the hands of the pharmaceutical chemist. Medical men owe a vast debt to the products of the research, skill, and care which characterise so much of modern pharmacy, but it is not rare for the pharmacist to step beyond his rightful domain and to attempt to indicate to the prescriber what and how he should prescribe. We have no special wish to conserve the use of Latin in prescriptions, though it may ensure a prescription being understood and correctly compounded in every quarter of the globe, but a student at his qualifying examination should be able to write an intelligible prescription at least in English, containing the drugs suited for the effect which he wishes to obtain and so compounded that they are fit for administration. This is no unreasonable demand, and yet all who have to examine students for their final examinations will agree that the average medical student at the end of his course is frequently unable to write a prescription free from faults.

LONDON COWS FOR LONDON NURSERIES.

THE trouble of obtaining pure milk in London, especially when it is for the purpose of the feeding of infants, is so great that any attempts to improve the actual unsatisfactory state of affairs deserve notice. The fundamental difficulty in the matter is that the milk has to come from a distance, sometimes from quite a long distance, and from districts where the control exercised at the farm may be insufficient. It is apt, moreover, to deteriorate during the journey from causes to the enumeration of which we have devoted considerable space at different times. How can these things be avoided? Obviously by having cows in London, but London has not been constructed to embrace farm-lands in her boundaries. And cows, especially during the milder months of the year, should be out in the fields. Also, the safest place to milk a cow is in the open air. But it has been demonstrated in more than one city by numerous analyses that milk obtained from the well-controlled, stall-fed cows kept in town stables is actually purer than that which has been derived from the inefficiently controlled country farms. Thus the inferior system, rigorously and properly carried out, gives better results than the superior system carelessly and improperly applied. An attempt to carry on a small dairy farm in the heart of London has consequently attracted our attention, and recently we paid a surprise visit to the establishment of Mr. E. J. Walker, a dairyman in Sloane-street, who keeps his milch cows in stalls in Church-street, Chelsea. Mr. Walker stated that he only bought cows that have been through the tuberculin test and after their third or fourth calf, as this is considered the best milking time. The stalls in Chelsea we found clean and free from odour, while the cows were obviously in good physical health and condition. The great point is that these cows are milked from 4.30 to 6 in the morning. In ten minutes the milk is conveyed from the stable to the depôt in Sloane-street, where it is filtered and placed in sealed bottles. By 7 o'clock it is at the consumer's house. But it is no easy matter to keep cows in London. Not only is the space for stables difficult to find and the rents are almost prohibitive, but the cost of food is about doubled, the same holding good for hay. In such circumstances pure milk from a town stable must be much dearer. The ordinary West-end price for milk is 4*d.* per quart. The charge for fresh-drawn milk from the stall-fed cow, delivered in sealed, sterilised glass bottles is 6*d.* per quart, though when it is a question of feeding infants the extra cost may be an economy. Does the question arise practically whether it would be good to encourage the establishment on a large scale of model cowsheds or stables for the production of nursery milk? Such stables would have a milking-room attached where the milkmaid, in a spotless overall and with specially washed hands, would milk the cow, away from stable dust, into a sterilised and cooled pail, while the fullest sanitary control could be exercised over the milk in its transit from the London cow to the London nursery. Our view is that anything like the formation of many such establishments in London would be impossible. It may require a very long time to reform and satisfactorily control all the country farms that send milk to London, but this can be done. The establishment of stall-fed cows inside London to meet even a fraction of the nursery demand would be impossible. Here and there, however, enterprising people like Mr. Walker may succeed in providing what must be a luxury.

"KUATSU" AND THE "HEART REFLEX OF ABRAMS."

"KUATSU" is the method empirically practised by Japanese experts in "Jiu-jitsu" for restoring to consciousness those rendered temporarily insensible by any of the orthodox "knock-out" movements. It has been used in addition with success in unconsciousness from other causes, in sunstroke, and in the treatment of the apparently drowned. An interesting paper by Abrams in the *New York Medical Journal* of Oct. 29th attempts to explain the physiological basis on which the treatment rests, and reaffirms its efficacy. There are various ways of performing Kuatsu, that usually seen amongst coolies on board ship in the Far East being to prop the patient up, stand behind him, grasp his head between the hands, and strike his seventh cervical vertebra rhythmically with the operator's right knee. The method, however, used by the Kano school, and sanctioned by the Japanese Government, is to lay the patient prone, with arms extended at right angles to the body, and for the operator to kneel over him and rhythmically strike his seventh cervical spine with the butt of his palm, wrist extended, until consciousness returns. He is then propped up, and his arms worked in a circle, after which he is helped on his feet, and induced with help to walk about in order to stimulate respiration and circulation, it having been found otherwise that he is liable to lapse into unconsciousness again and die. Abrams explains the frequent efficacy of the proceeding by stating that it is the most certain method known of stimulating the heart reflex called after his name. The "heart reflex of Abrams" is a "contraction of the myocardium of varying duration which results when the skin in the precordial region is irritated by stroking, tapping, or friction." The contraction is easily seen by means of the Roentgen rays, and may be mapped out by careful percussion of the area of cardiac dulness. It involves both ventricles, especially the left, after cutaneous irritation, and persists for some little time after the cessation of stimuli in normal hearts and may be present for some hours afterwards in cases

of cardiectasis. Previous injections of pilocarpine increase the sensitiveness of the reflex. Abrams found when X ray photographs were taken before and after one case that without pilocarpine there was a contraction of the shadow outline of from 1 to 2 centimetres, whereas 30 minutes after the injection of a tenth of a grain of pilocarpine on stimulation the shadow contracted from 2 to 7 centimetres. The reflex, he states, can be elicited from various surfaces on the body, but experimentally the most effective site and method, he found, was when the seventh cervical spine was percussed. Exercises and baths will produce the reflex, and to this he attributes the success of the Schott treatment, affirming, however, that "more can be done in a few days by eliciting the heart reflex in cardiac insufficiency" by the Kuatsu method "than by months of the conventional Schott treatment." In cases of acute infective disease with accompanying heart failure he also advocates its use, relating his results with a lady suffering from apical pneumonia, accompanied by heart failure. Late one night he was summoned hastily by her medical attendant and found her cyanotic and pulseless. As a last resort concussion of the seventh cervical spine was resorted to, the fingers of the operator's left hand placed on the patient's spine being struck by the right clenched fist slowly and steadily for ten minutes. The cyanosis gradually went and slowly the pulse became perceptible. At intervals of two hours throughout the night the process was repeated and each time the cyanosis became less and the pulse stronger. Eventually she recovered. The spine of the seventh cervical vertebra corresponds to the third dorsal segment of the cord and to the third dorsal nerve which sends a large branch to the inferior cervical ganglion, from which the augmentor fibres of the cardiac plexus are derived. It is probably stimulation of these, and not of the vagus as Abrams suggests, that increases the force of cardiac contraction and tonicity. Experimentally, concussion with a small hammer has been found the most effective method; and it seems probable that, after all, the habit of smacking coughing cyanotic people on the back may have physiological as well as time immemorial sanction.

THE TARRED ROAD.

THERE is a suspicion in not a few minds that the tarred road is prejudicial to health. Tar gives off, it is asserted, especially under the influence of the warm rays of the sun, peculiar empyreumatic substances which irritate the respiratory tract at some point or another. We are not disposed to accept that any really serious cases based upon this theory have arisen. If they have, the slight mischief can have been only transitory, since very soon the tar forms with the dust of the road a firm surface in which, apparently, the tar constituents are permanently fixed. There seems to be some reason for thinking that there is a kind of chemical affinity between the ordinary material of the roads and tar, for after a few months the two seem to set in a way recalling the hardening of asphalte, the granite stones can then be loosened only with some difficulty and the dust is bound. It may be conceded that the process of tarring the road gives rise to inconvenience, and here and there it may cause irritation to the nasal passages and throat, but as soon as the surface mass has set we are confident that no complaint on grounds of prejudice to health can be fairly levelled against the innovation. On the other hand, there can be little question that the matured, firm combination of tar, stones, and dust is being widely appreciated wherever the method has been adopted. The only objection we have heard of is that the firm tarred road is objectionable to horses, which show signs of fatigue very much sooner on the hardened surface than on the ordinary road, the material of which, of course, yields to some extent to foot pressure. We can appreciate this objection, but possibly a remedy for this could be found in a modified form of shoe for the horse. The motor will not so rapidly displace the horse that a palliative of the kind suggested needs no serious consideration. On general sanitary grounds the tarred road, when efficiently done, has everything in its favour. It presents a surface practically proof against the soakage and accumulation of offensive matters; it is washed clean by the rain, and surface drainage into the gutters and gullies is more effective provided the surface is even. These are very important considerations, having regard to the pathogenic possibilities of road dumpings. While, therefore, the primary object of the tarred road was the prevention of the dust nuisance, the process has improved the conditions of our highways in other important sanitary directions. Lastly, the method is preserving the surfaces, it keeps the binding material, the dust, to the road, and prevents its reduction to a layer of grit glistening with sharp, flinty particles, which often tempted the cyclist to say ugly things of the motor. The cyclist is rapidly appreciating the tarred road; he finds in it a smooth, practically frictionless, surface to run over, and the chances of a puncture are considerably reduced.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST.

AT the festival dinner of the City of London Hospital for Diseases of the Chest, which was held at the Trocadéro Restaurant on Nov. 10th, the Hon. Walter Rothschild, who presided, entered a strong plea for increased financial support which is urgently required if the hospital is to keep its beds in full use. The chairman pointed out that less than 15 years ago the fortunes of the hospital had sunk very low and more than half the beds had to be closed. Owing, however, to the untiring energy of everyone connected with the hospital all the 170 beds were now occupied. This desirable state of things had only existed for one year, and the committee had been greatly encouraged in their efforts on behalf of the hospital by a gift of £4000 from the King Edward Hospital Fund. Hospitals had to live on their current income, and so long as people believed that it was only necessary to give a good sum of money at a hospital dinner so long would hospitals continue in an unstable position, but he hoped that the time would come when the charitable public would realise that the better plan was to endow hospitals. A remarkable feature in connexion with the hospital was the large number of working-men's societies which contributed more than £1000 a year. A matter which called for the earnest attention of all those who wished the work of the institution to be carried out in the best possible way was the provision of a sanatorium. It was not fair to the medical staff that after they had given unremitting care to a patient in the hospital the treatment should be nullified because there was no sanatorium where it could be continued for a few weeks with the object of completing the cure. Dr. George A. Heron endorsed the plea for a sanatorium, hoping that everyone who had the welfare of our consumptive poor at heart would see that a hospital like the one for which he was pleading, in the very centre of the East-end of London, should no longer remain without the sanatorium which it so greatly needed. It was hypocrisy, he said, to tell a poor patient to go to his own home and continue the hospital treatment, while the most dangerous class of consumptives were those who were unable to get continuous treatment, because they carried infection to other classes. Dr. T. Glover Lyon also emphasised the necessity for a sanatorium. In the course of the evening the secretary read a list of subscriptions amounting to £2617.

The contributions from various working-men's societies ranged from 30 to 200 guineas.

THE MEDICAL PROFESSION AND MUNICIPAL HONOURS.

THE following members of the medical profession have been elected or re-elected to the mayoral chair:—*Faversham*, Mr. S. R. Alexander, M.D. Lond., M.R.C.S. Eng., L.S.A.; *Hartlepool*, Mr. W. Scott Gibb, M.B., C.M. Edin.; *Montgomery*, Mr. N. W. Fairles-Humphreys, M.R.C.S. Eng., L.S.A. (re-elected); *Newark*, Mr. F. H. Appleby, M.R.C.S. Eng., L.S.A. (re-elected); *Oswestry*, Mr. R. de la Poer Beresford, M.D. Glasg., L.R.C.P., L.R.C.S. Edin., L.R.C.P. Lond. (re-elected); *Ruthin*, Mr. T. Owen Jones, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg. (re-elected); *Saffron Walden*, Mr. J. P. Atkinson, M.D. Glasg., L.R.C.P. Lond., L.R.C.S. Edin.; *Warrington*, Mr. G. W. Joseph, M.D. Durh., L.R.C.P. Irel., M.R.C.S. Eng.; *Wrexham*, Mr. S. Edwards Jones, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg.

PNEUMOCOCCIC POLYARTHRITIS RESEMBLING RHEUMATIC FEVER.

PNEUMOCOCCIC arthritis has been rarely observed in this country, and has been principally investigated by continental writers. The first case recorded in England was published in our columns by Dr. E. J. Cave.[1] In adults the condition usually occurs in association with pneumonia, but in children it frequently occurs apart from the latter. Like many supposed rarities, pneumococcic arthritis is probably not so rare as its records might lead one to suppose, and would be more often observed if looked for. This is borne out by the fact that within the last two years no fewer than five fatal cases of pneumococcic polyarthritis have been under the care of Dr. Finley in the Montreal General Hospital. They are recorded in the October number of the *Montreal Medical Journal* by Dr. A. H. MacCordick, of the Pathological Laboratory, who calls attention to their resemblance to rheumatic fever. In all the diagnosis was proved bacteriologically. It is interesting that in four of the cases there was a previous history of rheumatic fever and in the remaining one of chorea. In the first case, a girl, aged 16 years, was admitted on Oct. 8th, 1908, complaining of pain in the left shoulder and in the ankles. In childhood she had whooping-cough and measles. At the age of seven years she was in the hospital for two months with rheumatic fever involving the knee- and ankle-joints. At the age of 14 years she was again admitted with rheumatic fever and pneumonia. At the age of 15 years she was two months in the hospital with rheumatism of the left elbow and knee, and right ankle and knee. There was a mitral systolic murmur. Recovery took place under salicylates. During the summer before her present illness her feet and ankles were occasionally swollen and painful. Her illness began on Oct. 4th with pain in the left foot. On the following day this foot was better, but the right was involved. Three days later the left shoulder became very painful. The pain in the joints was of a sharp stabbing character and was felt only on movement. She vomited several times daily and perspired freely at night. On admission she was somewhat anæmic and drowsy. The temperature was 100·4° F. and the pulse 112. There was a diffuse cardiac impulse and the cardiac dulness extended to the second rib and 3 centimetres to the right and 13 centimetres to the left of the middle line. The first sound was replaced by a blowing murmur. The left shoulder and both ankles were very painful on movement, but were not swollen. The red corpuscles numbered 3,546,000 per cubic millimetre. On the 9th the pain in the joints was less, but there was severe pain in the præcordium, where a to-and-fro friction rub was heard. The temperature ranged from 98° to 102°. On the 11th there were signs of double pleural effusion. On the 13th the pulse was very feeble and small and she sank and died. At the necropsy 500 cubic centimetres of clear fluid were found in the peritoneal cavity, and 100 cubic centimetres of brownish fluid in the left pleural cavity. The pericardium contained about 50 cubic centimetres of brownish turbid fluid. The visceral and parietal layers were firmly adherent by a greyish fibrinous exudate. The heart weighed 375 grammes. The mitral valve was sclerosed and contracted and on its edges were a few small reddish vegetations. There was well-marked acute nephritis. The left shoulder-joint contained a little slightly turbid fluid, but the synovial membrane was smooth and glistening. Cultures made from the heart's blood, the pericardium, and the shoulder joint showed the pneumococcus. In the second case a girl, aged 16 years, was admitted on Feb. 27th, 1909, complaining of pain in the chest. She had been previously admitted three times for rheumatic fever. Her illness began on the 22nd, when the left ankle became swollen, red, and tender and painful on movement. On the following day pain in the chest began. In a day or two the ankle was better, but the pain in the chest continued. On admission the temperature was 101·4° F. and the pulse 120 and small. The præcordium slightly bulged. The cardiac impulse was in the left fifth and sixth spaces, 10 centimetres from the middle line. There were a mitral systolic murmur and frequent hacking cough, with little expectoration. Subcrepitant râles were heard at both bases and there was dulness below the left ninth rib. On March 2nd the lips and finger-nails were cyanosed, the face was pale, and the extremities were cold. She occasionally expectorated a little tenacious bloody sputum. There were occasional spasms of præcordial pain. Fine crepitations were heard all over the chest and there was some œdema of the ankles. She became weaker and died on the 4th. The necropsy showed left lobar pneumonia, chronic fibrinous pericarditis, and acute and chronic endocarditis. The synovial membrane of the left ankle-joint was normal, but the fluid in it, which was only sufficient to moisten a swab, as well as the heart's blood and the pericardium, showed on culture the pneumococcus. In four of the cases (including the two which have been related) the arthritis preceded other affections by an average period of about six days; in the remaining case it occurred three days after the onset of pneumonia. Lobar pneumonia was present in one case and bronchopneumonia in two cases. The patients were all females, and excepting one, aged 39 years, were children from the age of 14 to 16 years.

[1] THE LANCET, Jan. 12th, 1901, p. 82.

INVERSION OF THE RADIAL REFLEX.

UNDER the name of "Inversion of the Radial Reflex," M. Babinski, who is so well known by his eponymic plantar reflex, has added another pathological reflex to clinical medicine. At a meeting of the Société Médicale des Hôpitaux of Paris on Oct. 14th he reported this discovery. In the normal state percussion of the lower end of the radius usually produces simple flexion of the forearm on the arm. If the reflexes of the upper limb are strong other movements, particularly flexion of the fingers, may accompany flexion of the forearm. This generally occurs in hemiplegia of cerebral origin. But in health percussion of the radius never causes flexion of the fingers alone. This "inversion of the radial reflex" M. Babinski has found in certain diseases of the cervical cord—syringomyelia and tumour—but never in lesions of other parts. He has not had an opportunity of performing a necropsy in any case, but physiological data show

clearly where the lesion must be situated. The centre for the reflex of flexion of the forearm on the arm is situated in the fifth cervical segment, while that for flexion of the fingers is situated in the eighth cervical segment. The conclusion is obvious that inversion of the radial reflex is due to a lesion of the fifth cervical segment. In such a lesion reflex flexion of the forearm on the arm could be abolished, and if the lesion extended to the pyramidal tracts reflex flexion of the digits would be increased. M. Babinski admits that the same phenomenon could be produced by a limited lesion of the peripheral nerves, but he has no experience of a lesion of this kind, and if it occurs he thinks it must be exceptional. From his observations he draws the conclusion that inversion of the radial reflex constitutes a sign which by itself alone allows a lesion of the cervical cord to be affirmed, and points to its exact localisation.

THE SUPPRESSION OF RABIES IN PARIS.

THE report for the year 1909 of the Veterinary Sanitary Service of Paris and the Department of the Seine has just been issued. It is a big book, and as usual contains a great mass of detail concerning the prevalence of various diseases among cattle and animals of all sorts. The control of abattoirs and meat markets, the transport of fish and milk, in a word, some of the most important matters in the food-supply of the city come under notice. Of the various chapters, the first is in some ways the most interesting. It contains a history of the struggle to suppress rabies, which is still relatively widespread in France. This is all the more serious as there are more dogs in France than in most countries. Thus it appears that per 1000 inhabitants there are 75 dogs in France and only 38 in England, 31 in Germany, and 11 in Sweden. In England and Sweden rabies has been stamped out, and it is very rare in Germany. Dr. H. Martel, Chief of the Veterinary Service and author of the report, considers that the most useful measure is to destroy all stray dogs. This of late years has been done rigorously in Paris and the surrounding department of the Seine, but not so in the other departments or counties of France. Thus in the Seine, which includes Paris, there were 807 cases of rabies among dogs in 1900, and 1964 in the other departments. There had been 9691 dogs captured the previous year. In 1900 more than 12,000 were taken, and the following years the number of captures amounted to 16,293, 16,856, 14,665, and 15,251. This brings us to the year 1904. The result is that in 1901 there were 846 cases of rabies in the department of the Seine, and 1872 in the other departments; in 1902 the figures were respectively 474 and 1852; in 1903 there was a further fall to 179, while the figure for the departments rose to 2184. In 1904 and 1905 the figures for the departments were 2221 and 2248, while for the department of the Seine they were only 172 and 120. The decrease has continued, and in 1906 the number was 74, in 1907 only 43, in 1908 it was 37, and finally last year only 13 cases of rabies were reported, where at the beginning of the decade there had been more than 800. Surely this is a notable achievement. In the departments during the last four years there are signs of improvement, the figures having fallen to 1971, 1849, 1445 and 1450 for the four years in question. The amelioration achieved in the department of the Seine is set forth in another manner. In 1901 the tax was paid for 140,000 dogs, so that the proportion of cases of rabies was 0·604 per cent. of dogs taxed. In 1909 the tax was paid for 185,000 dogs, and as there were only 13 cases of rabies, this was equal to 0·007 per cent. Again, if we take the first five years of the decade—namely, 1900 to 1904—there were altogether during this time 2478 cases of rabies in the department of the Seine; while during the second five years, 1905 to 1909, there were only 287 cases. These figures are based on the notifications made by veterinary surgeons as the result of diagnosis or of post-mortem examination. In the former case errors sometimes occur. There is a tendency to be on the safe side and declare a dog to be mad so that it should be destroyed when after all it was not affected by rabies. As far as possible these declarations have been checked by post-mortem examinations or by inoculations, but this could not always be done. If only the cases proved genuine at the Pasteur Institute were counted the figures would be reduced by more than half, but the falling-off in the number of cases from year to year would be in the same proportion as that shown by the figures given above. Obviously the best protective for human beings is to keep the dogs healthy. This does not prevent persons who are bitten by perfectly healthy dogs from hastening to the Pasteur Institute to undergo the antirabic treatment. Therefore the number of patients treated does not represent the number of *bonâ fide* cases of rabies among dogs. Nevertheless, there has been a great reduction of patients, though doubtless dogs are just as apt to snap and bite as in the past. At the Pasteur Institute 637 patients underwent the antirabic treatment in 1900 and 623 in 1901. In 1909 the number of persons treated because they had been bitten by dogs that might possibly be suffering from rabies was only 105. As for human cases of rabies these are extremely rare in the department of the Seine, the last one observed dating back to the year 1905. Formerly they were relatively frequent. Dr. Martel insists that the great improvement brought about is due to care taken, when a case of rabies occurs, to destroy not merely the mad dog, but further to destroy, or in any case to closely observe, all the other dogs it may have infected. As, however, this can rarely be done in complete manner, obviously the most effective measure is the capture of all stray dogs.

THE DISPENSING OF MEDICINES.

ATTENTION has been directed by a correspondent to a report of an address delivered by Mr. Richard Winfrey, M.P., whose name appears on the Register of Chemists and Druggists, at a meeting of the Public Pharmacists and Dispensers Association, in the course of which he said that: (1) authorities appointing dispensers to public institutions should be made to understand the difference between a man who had passed the minor examination of the Pharmaceutical Society and one who had merely passed the Apothecaries' Hall assistants' examination; and (2) the knowledge of pharmacy possessed by the ordinary medical practitioner is very slight indeed, and medical practitioners should not be allowed to dispense their own medicines under their present qualifications. With regard to the first point, it is not disputed by anyone competent to judge that the diploma granted by the Pharmaceutical Society is of greater value than that granted to assistants by the Apothecaries' Society, and there are, we should imagine, few authorities responsible for the appointment of dispensers who are not aware of the fact. The possessor of the superior qualification, however, expects quite naturally higher remuneration for his services than does the holder of the assistant's certificate, and very often for that reason vacancies are filled in some institutions by the appointment of dispensers with the latter qualification. In all the great London hospitals and in the majority of the larger provincial hospitals the dispensers appointed are qualified under the Pharmacy Act, and the same rule applies in many of the smaller institutions. In other cases the dispensing is done by holders of the Hall certificate under medical responsibility or by local chemists. In every lunatic asylum under the control of the London County Council in which a

dispenser is employed the dispenser holds the qualification of the Pharmaceutical Society. The appointment of Poor-law dispensers is subject to the approval of the Local Government Board, whose regulations require the person appointed to possess one of the following qualifications: (1) the Licence of the Society of Apothecaries; (2) the assistant's certificate of the Society of Apothecaries; (3) registration as an army compounder, R.A.M.C.; (4) registration under the Pharmacy Act, 1868; and (5) registration as a pharmaceutical chemist of Ireland. It is hardly necessary to point out that those applicants who hold the highest qualification usually obtain the appointments when vacancies occur. The second point raised by Mr. Winfrey involves a question of considerable difficulty; for obvious reasons it is quite impracticable for every medical practitioner to employ a dispenser and, under existing conditions, a very large proportion of medical practitioners could not possibly refuse to dispense medicines. If they did so there would be no one else to do the work. At the present time a joint committee of medical practitioners and pharmacists is considering whether it is possible to make any recommendations with regard to this very question. The committee is composed of ten medical practitioners appointed at the last annual meeting of the British Medical Association and ten pharmacists appointed at the last meeting of the British Pharmaceutical Conference, and if it is able to put forward reasonable suggestions as to how medical practitioners can be relieved of what the physicians of two centuries ago described as a "servile and laborious business" the profession will not be ungrateful. But for the present the medical profession must continue to dispense medicines, and, as we point out elsewhere this week, those responsible for the education of our medical students should see that they are duly educated to this end.

THE DRUG TREATMENT OF PULMONARY TUBERCULOSIS.

So much interest has of late years been centred round the sanatorium treatment of pulmonary tuberculosis, and still more recently round the use of tuberculin, that the use of drugs in this disease has received but comparatively little attention. In the present number of THE LANCET we publish two communications on the results obtained by the employment of potassium bichromate in the one instance, and of continuous antiseptic inhalations in the other. Dr. James B. Tombleson publishes six cases treated by potassium bichromate. The cases all exhibited advanced disease, nevertheless the results were uniformly good. This is certainly remarkable and indicates that further trial might be made by other observers. The method has the advantage of simplicity. The drug is given in doses of ¼ gr. (2½ minims of a 10 per cent. solution in water), either alone or in combination with a tonic mixture, such dose to be taken in a wineglass of water after food, at first twice and later three times a day. Dr. David B. Lees advocates the employment of continuous antiseptic inhalations. He has previously published the results in 30 cases of incipient or early pulmonary tuberculosis in which the treatment had been employed with success. He now gives the further progress of these cases and shows that they continued to progress favourably. In his present article he reports 20 more cases in which the same method of treatment has been used. Some of these patients came under observation at a much later stage of the disease, nevertheless the results were all favourable. As Dr. Lees remarks, however, when the more advanced stages are reached recovery must be comparatively slow and the final issue may be doubtful. He strongly insists that pulmonary tuberculosis is recognisable and ought to be discovered before there is any breaking down of lung tissue, and adds: "To suspend the diagnosis until tubercle bacilli are detected in the sputum is like delaying the diagnosis of cancer until the glands are involved." Undoubtedly the earlier treatment is commenced in cases of pulmonary tuberculosis the better the prognosis, but it is difficult definitely to appraise the value of any treatment until the diagnosis of the disease has been absolutely confirmed by bacteriological evidence. There is always a possibility of doubt that active tuberculosis was not present. Dr. Lees's method of treatment should be extensively tried, for his results are decidedly encouraging, and the fact that relief can be obtained in other than very early cases is a stimulant for further observations to be made. In THE LANCET of Nov. 12th we published an article by Mr. J. McElroy on the treatment of pulmonary tuberculosis by intravenous injections of chinosol with formaldehyde. He recorded three cases in which this method was adopted, and in which satisfactory results were obtained, but the number of cases is, of course, too small to form a judgment upon. These several therapeutic measures might be further tried in those cases in which, for various reasons, sanatorium or vaccine treatment cannot be adopted. It would be interesting to know whether other physicians obtain the same results as those who have recorded their cases in our columns.

THE MARKING OF IMPORTED MEAT.

THE Local Government Board has recently issued a circular addressed to medical officers and sanitary authorities calling attention to the description of a brand and labels which are declared to be admissible as "official certificates" in respect of pork and other edible portions of the pig which have been subjected to inspection in the State of Queensland. The labels, facsimiles of which are reproduced in the circular, are regarded as evidence that the pig has been certified by a competent authority in the place of origin to be free from disease at the time of slaughter. The labels are taken to convey also that the meat has been certified by the like authority to have been dressed or prepared, and packed with the needful observance of all requirements for the prevention of danger arising to public health from the meat as an article of food. The Local Government Board takes the opportunity afforded by the issue of the circular of pointing out that difficulty has been experienced in some cases in extracting from the annual reports of medical officers of health certain details which the Board desires as to quantities of food materials condemned at the ports. In some of the annual reports the required facts are given with considerable fulness, but in others, although much useful information is set out in regard to this matter, details are not recorded in a form which enables them to be properly classified. The circular contains a category of the foods concerned and the kind of particulars which should be given.

PLAGUE AND THE DESTRUCTION OF RATS.

THE Local Government Board, in consequence of cases of plague in rats in certain parts of England, has deemed it desirable to confer upon local authorities in England and Wales powers with regard to the destruction of rats in districts where plague in rats is present or suspected, or in which there is an unusual mortality among rats. The Board has accordingly issued an Order authorising the local authority to take measures for the destruction of rats and for preventing their entrance into buildings and any premises. Inasmuch as the risk of infection from plague-stricken rats arises mainly through fleas, it is obviously to the interest of all persons to do what they can to prevent contamination of their dwellings and to remove from the proximity of dwellings

accumulations of material or rubbish which may harbour rats or their parasites. A memorandum on plague has been prepared by the Board's medical officer and is now issued, and the Board has arranged for bacteriological testing of material from the earliest suspected case or cases of plague or from the earliest suspected rodents in any district. This material can be received by the Board only from the medical officer of health.

PARLIAMENT reassembled on Tuesday, Nov. 15th, but in the present state of public affairs it is fairly certain that no medical questions will be considered.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on Nov. 10th, Mr. BUTLIN, the President, being in the chair.

In accordance with a report from the Court of Examiners Diplomas of Membership were granted to 66 successful candidates and Licences in Dental Surgery were issued to five successful candidates.

The Council accepted the tender of Messrs. Holland and Hannen for the building of the Examination Hall in Queen's-square.

A letter was read from Mrs. Langton thanking the Council for their resolution of sympathy on the death of her husband.

The PRESIDENT reported that the Bradshaw Lecture would be delivered by Sir A. Pearce Gould, K.C.V.O., on Wednesday, Dec. 7th, at 5 P.M., and that the subject of the lecture would be Cancer.

The PRESIDENT reported that Mr. Bruce Clarke's period of office on the Court of Examiners would expire in December next, and that the vacancy thus occasioned would be filled at the ordinary meeting of the Council on Dec. 8th.

The SECRETARY reported the delivery of three Museum demonstrations by Dr. Arthur Keith and three by Mr. S. G. Shattock.

A vote of thanks was accorded to Mr. Lockwood for a gift of books.

WOMAN SUFFRAGE: THE CONCILIATION BILL.

THE following memorial was sent to the Prime Minister on Nov. 14th, 1910, signed by 407 medical women:—

We the undersigned medical practitioners desire to urge the Government to grant immediate facilities for the further stages of the Conciliation Committee's Bill for Woman Suffrage.

In a Memorial which 538 medical women had the honour to present to you in November, 1908, their unanimity on the question of woman suffrage was clearly shown.

As members of the medical profession women conform to all regulations imposed upon candidates for medical degrees, and they undertake responsible public and private work which is fully recognised by the State. It is manifestly inexpedient that, on the ground of sex alone, they should be unable to influence legislation on questions about which their special knowledge particularly fits them to hold an opinion.

Moreover, as taxpayers, women practitioners feel strongly that their exclusion from all voice in the election of Parliamentary representation is inconsistent with the first principles of democracy, viz., that Government rests on the consent of the governed, and that those who pay the taxes should have a voice as to how the taxes are spent.

The justice of the claim made by women for the parliamentary vote has been admitted by large majorities in the House of Commons on many occasions.

We urge that the dignity of the House of Commons will be diminished if it fails to put its principles into practice. We ask that time may be given to allow the present House of Commons to carry through the final stages of the Conciliation Bill, which has already passed its second reading by a majority of 110 votes and which proposes to extend the Parliamentary franchise to those women who are already on the municipal register.

The majority of medical women, as householders, would be enfranchised by the Bill.

TORQUAY NURSES' INSTITUTION.—As a result of the fête recently held at the Princess Gardens the sum of £280 has been raised for the Torquay Nurses' Institution.

THE LONDON COUNTY COUNCIL AND MEDICAL AFFAIRS.

Board of Education and Accommodation for Defective Children.

THE Board of Education, in granting for a limited period an application by the London County Council for recognition of a temporary building as a school for mentally defective children, has intimated that it strongly deprecates makeshift arrangements for providing education for defective children in London, and urges the Council to proceed with all possible despatch to complete the survey of accommodation. The survey should include schools for physically defective, as during the year ended March, 1909, 11 schools for mentally defective and 11 for physically defective children were seriously overcrowded, deductions having to be made from the grant on this account. Similarly during the year ended March, 1910, so far as the review of claims for grant had gone, seven schools for mentally defective and 11 for physically defective children had been found to be overcrowded and the grant had been reduced in some cases. The Board hoped the Council would take steps to put matters on a satisfactory footing without delay.

The Education Committee, in reply, stated in a report presented to the Council on Nov. 15th, that a survey of the accommodation for mentally defective children had been made, and proposals for providing 705 additional places to meet immediate needs had been submitted to the Finance Committee. That committee suggested that the first question to decide was the principle involved in the provision of additional permanent accommodation for mentally defective children pending the result of the deliberations on the report of the Royal Commission on the Care and Control of the Feeble-minded—still under the consideration of the General Purposes Committee. In the circumstances the Finance Committee had adjourned the consideration of the Education Committee's proposals.

Administration of the Provision of Meals Act.

The Board of Education has asked for a return with regard to the administration of the Education (Provision of Meals) Act, 1906, and for the observations of the Council on the following points: (1) The extent to which the provision of meals has appreciably increased the ability of children to take full advantage of the education provided; and (2) the extent to which the conduct and manners of the children have benefited under the discipline employed. The Board stated that it attached great importance to the close association of the work done under the Act with the work of the school medical service, and desired to be fully informed of the arrangements for securing coöperation between the school medical officer and the care committees and their officers, and in respect of the recommendation and selection of children, the regulation of the dietary, and the observation of the physical and hygienic results attributable to the meals.

The Education Committee suggested that a reply should be sent to the Board stating that the general appearance of the average necessitous child had been improved by the supply of school meals. To arrive at any estimate of the comparative ability of children was difficult, however, as under the Council's scheme children were not allowed, except during holidays, to remain unprovided with food. With a view to educating the children to be well-behaved, a list of rules of conduct had been drawn up. Where voluntary supervision was not forthcoming paid supervisors were to be employed. As to the nutrition of children there could be no absolute standard. Necessitous children were not necessarily ill-nourished at the time of application for aid, nor did they always need medical inspection. Malnutrition might be due to the absence of suitable food, or to such home conditions as overcrowding, lack of sunlight and insufficient sleep, which contributed to produce the typical appearance of a necessitous child. Consequently the care committees relied to a great extent upon the circumstances of a family as revealed by investigation. No hard-and-fast rule as to "necessity" had been adopted, so varying were the circumstances that almost every case had to be considered on its individual merits. In some cases the child remained ill-nourished although sufficient food seemed to be available. This might be due to insufficient building up of the tissues

either from unsuitable food or from lack of power to digest food—as in cases of bad teeth or indigestion. Other causes were: partaking of materials hindering digestion—strong tea for instance—or lack of power to assimilate food, as in cases of chronic irritation or tuberculosis of the lymphatic system. Excessive breaking down of the tissues occurring in conditions of nervous irritability, such as accompanied insufficient sleep, the attacks of vermin, chronic fatigue and overwork, and constant, though perhaps slight, febrile illnesses, also led to children having an ill-nourished appearance. Such cases came within the purview of the school doctor. There was always coöperation between the public health department and the education service through the medium of the teacher. The records of the school medical inspections were always at the disposal of head teachers and care committees, and were consulted when children were selected to receive meals. The head teacher indicated to the school doctor the children who appeared to be in need of special treatment, and the school doctors, on the other hand, often recommended inquiries into the home circumstances of individual children. In cases of delicate or anæmic children a dietary of milk or cod-liver oil was recommended by the school doctor, and if the case was approved this was supplied at the Council's expense. The *menus* for the school meals had been drawn up in consultation with the school medical officer.

Premiums on Pauperism.

A naïve request has been made to the London County Council by the Hampstead board of guardians, whose clerk wrote in the following terms:—

> The officers of the guardians take considerable care to inquire into the ability of relatives to support inmates of the asylums, and the collector of the guardians is paid by commission upon the amounts that he collects. The practice of your Council to take over any case where the relatives are found to be able to pay the full amount of cost of maintenance deprives the collector of his commission on the amounts so collected. Would it not be possible for the County Council to make provision for the payment of commission in such cases?

The request of the guardians, as the Asylums Committee pointed out to the London County Council on Nov. 15th, means practically that in order that the parish collector may draw his commissions, asylum patients, the cost of whose maintenance is not borne by any public authority, shall remain under the stigma of pauperism. For, so long as the payment for a patient's maintenance is made to the County Council by a board of guardians—no matter if the whole cost is recovered by the guardians—that patient remains a pauper. If, however, the expenses of maintenance are paid directly to the asylum without the intervention of a board of guardians, the patient ceases to be "chargeable to a union," and is classified as a private patient. It is the duty of the County Council to inquire as to the means of patients and to classify them as "private" if they are so entitled. Readers will find in the case of Regina *v.* Jones, *re* Stennett, a decision bearing on this point. The Council, not unnaturally, decided that it could not grant the Hampstead parish collector a commission on work he no longer performed.

Recovery of Cost of Dental Treatment.

An experimental scheme for the recovery from parents of the cost of dental treatment came before the Education Committee at its meeting last week, but was withdrawn by the chairman of the subcommittee concerned. The subcommittee remarked that in fixing a charge for dental treatment it had to be borne in mind that unless there was actual suffering parents generally did not recognise at present the need for treatment. The obligation the council was under to make a charge might militate against dental treatment being obtained, and until the importance of dental treatment was more widely recognised it was desirable that the inducements for obtaining it should be as great as possible. The subcommittee thought that as an experiment the following inclusive charges should be made: 2*s.* 6*d.* for the complete treatment of the mouth where stoppings were included; 1*s.* 6*d.* where the treatment consisted of extractions under gas; and 6*d.* for simple extractions. Where more than one child in a family required dental treatment half the amount charged for the first child should be charged for each additional child, provided the net family income was 25*s.* or under. Legal proceedings to enforce payment would not be taken where the net income fell below 17*s.* 6*d.* a week, and in the case of incomes below 30*s.* remissions would be made according to circumstances.

THE CHOLERA EPIDEMIC.

(By the British Delegate on the Constantinople Board of Health.)

Cholera in Russia.

Since the date of my last letter on this subject (which appeared in THE LANCET of Oct. 15th, p. 1160) there has been a continued decline in the epidemic of cholera in Russia. I give below the "corrected" figures for the last three weeks (August 15th to Sept. 4th, Old Style), for which "uncorrected" figures were given in that letter:—

Week ending August	21st	...	13,330	cases,	6,187	deaths.
,, ,, ,,	28th	...	9,962	,,	4,924	,,
,, ,, Sept.	4th	...	5,895	,,	2,853	,,

Since then the "uncorrected" figures for four weeks have become available. They are as follows:—

Week ending Sept.	11th	...	3038	cases,	1474	deaths.
,, ,, ,,	18th	...	2104	,,	1087	,,
,, ,, ,,	25th	...	1677	,,	858	,,
,, ,, Oct.	2nd	...	679	,,	353	,,

(The above dates are all according to the Old Style.) During these seven weeks the epidemic has been most active in the governments of Samara, Saratof, and Voronezh in the Volga valley; in those of Kief and Ekaterinoslav; in the province of the Terek and the governments of Tiflis, Daghestan, and Erivan in the Caucasus and Transcaucasia; in the Don Territory; and in the Orenburg government. It may be noted that the single cases formerly reported from the governments of Archangel, Olonetz, and Pskof have been succeeded by several others, though the totals for these governments still remain very low. In Reval, also, some further cases have occurred, and Riga (whence only 2 cases had been reported) has been the scene of a small epidemic. For Finland also the former total of 2 cases has now risen to 4. The Baltic province of Courland has appeared for the first time in the lists, but with very few cases. In Central Asia and Siberia all the governments and provinces formerly mentioned are still included in the returns; and, in addition, the disease has appeared in the government of Semipalatinsk, in the province of Ferghana (beyond Samarkand), and in the Far East provinces of Transbaikalia and the Amur. In each of these some scores of cases of the disease have been recorded. It will be seen, therefore, that practically the whole of Asiatic, as of European, Russia has been invaded by the cholera infection. In nearly all parts, however, the latest returns indicate a distinct and steady decline in the numbers of cases and deaths, and with the advent of the cold weather an early extinction of the epidemic may be looked for. It would be idle, however, to pretend that this can be more than a temporary extinction, and a fresh and possibly more severe revival next year must be regarded as highly probable, if not an absolute certainty.

The following observations, relating to the spread of the disease by water, may be quoted from the *Vratch*, in which they appeared at intervals during the last few months. As early as May it was reported that in samples of water taken from the river Dnieper at Kief large numbers of cholera vibrios had been found. The samples were taken from the river close to the intake of the town water-supply. At the same time many cases of cholera were occurring on the rafts plying on the river, as well as in the town. A month later it was stated that the same observer had found cholera bacilli in samples of water taken from streams flowing into the Dnieper in the outskirts of Kief—streams in which, it was added, the people washed, not only their clothes, but also fruit intended for the market. In Tiflis cholera vibrios were detected in the town water-supply (apparently in July), and the rapid spread of the disease there is said to have had all the characteristics of a water-borne epidemic. In Rostof-on-Don the same thing was observed. In Tashkent, in Central Asia, cholera vibrios were found in the irrigation canals which intersect the town. In Vladikavkay, in the northern Caucasus, cholera vibrios were found in the waters of the river Terek. At Biélgorod, in the Kharkof government, the bacilli were found in the waters of the river Donetz, a large tributary of the Don. Finally, in St. Petersburg, in three samples of water taken, on August 14th, 16th, and 17th (Old Style), from the stopcock at the water-works on the south side of the Neva, cholera vibrios

were found in all. Of three samples taken on the same days on the north side of the river bacilli were found in one. Of 22 samples of unfiltered water taken from the wells and tanks at the principal waterworks of the city on the same dates cholera vibrios were found in 9 (or 41 per cent.). Of 59 samples of filtered water taken at the same time from different filters and cisterns 11 (or 19 per cent.) were found to contain cholera vibrios. From another series of experiments it was shown that the filter-beds, as worked in St. Petersburg, only removed about 33 per cent. of the bacteria of all sorts contained in the Neva water. The above experiments were continued; and between August 18th and 23rd (Old Style) out of 23 samples of unfiltered water from the central waterworks, 16 (or 70 per cent) were found to contain cholera vibrios; and out of 63 samples of filtered water from the same works 20 (or 32 per cent.) were similarly contaminated.

Cholera riots and disorders have been reported from many parts of the country.

Cholera in Germany.

I regret to have made an error in my last letter on this subject in stating that cholera had, up to the date of that letter, appeared in Germany solely at Spandau. As a matter of fact, as early as June 21st a Russian subject fell ill with the disease at Ruhleben, in the Potsdam district (a centre of control for immigrants). The result of a bacteriological examination in this case was positive. Three days later a second case occurred under precisely the same conditions; both patients died. The Spandau cases, already referred to, occurred in the last week in August. No other cases were seen there, though three carriers of bacilli (in addition to the four mentioned in my last letter) were detected. On Sept. 9th a boatman fell ill with cholera at Freiburg (district of Stade). On the 10th a labourer at Copitz, in Saxony, was attacked with the disease. On the 13th a second patient (the son of the above-named boatman) fell ill at Freiburg, and died. On the 13th and 15th there were three cases of the disease at Marienburg, in West Prussia (a shop assistant and two children). In the week ending Sept. 25th there were 5 cases and 2 deaths at Kalthof and Marienburg. On Sept. 22nd a death from cholera occurred at Sommerau, near Altfelde. In the week ending Oct. 2nd 4 more cases were recorded at Marienburg. In that ending Oct. 9th there were apparently 6 cases of the disease among persons under surveillance, as "contacts" of previous cases at Marienburg, and 1 of these died. Cholera bacilli were found in all of them; 2 were women and 4 were children; in addition, 2 children were found to be carriers of bacilli. Finally, for the week ending Oct. 16th no further cases were recorded in Germany.

Cholera in France.

Imported cases only have been seen in France. The ss. *Bosphore* arrived at Marseilles from Constantinople, and on Oct. 1st 3 undoubted cholera cases were isolated from among her passengers. On the 6th a fourth case occurred. There was, however, no spread of the disease to the inhabitants of Marseilles, which was consequently never regarded as an infected port.

Cholera in Austria.

No further cases of cholera have occurred in Vienna, and on Oct. 15th Austria was declared free from the disease as from Sept. 27th.

Cholera in Hungary.

The figures for Hungary were brought down in my last letter to the week ending Sept. 24th. For the following week the figures are wanting. Between Oct. 1st and 8th there were 34 cases with 13 deaths in 24 different places in Hungary; and the totals down to the last-named date were put at 207 cases and 106 deaths. In the week ending Oct. 15th there were 76 further cases and 34 deaths. Finally, on the 17th it was announced that a violent outbreak of the disease had occurred in the commune of Bata, in the province of Tolna, situated "on a branch of the Danube, the waters of which are stagnant," and that 31 cases had already been registered. (It should be added that 23 of these cases were included in the above total of 76 cases for the week ending Oct. 15th.)

Cholera in Italy.

Since the date of my last letter there have been reported, on Sept. 22nd, 12 cases and 2 deaths at Molfetta, 2 cases and 2 deaths at Trinitapoli, and 2 cases at Cerignola; and on the 23rd 6 cases at Molfetta, 2 deaths at Barletta, 1 case at Trinitapoli, and 4 at Cerignola. For the following week the figures are wanting. Between Oct. 1st and 11th 285 cases of cholera with 81 deaths were returned for the whole of Italy. The infected provinces were those of Avellino, Caserta, Bari, Foggia, Naples, Rome, Salerno, and Sassari (in the last-named only 3 cases occurred, on a ship in the quarantine station). In Naples itself as many as 104 cases, with 38 deaths, were recorded, and a long list of infected places in the Naples province appears in the return. At Rome 2 cases occurred. In the period between Oct. 12th and 19th (both included) there were 237 cases and 120 deaths for the whole country. Of these, 76 cases and 44 deaths are stated to have occurred in a lunatic asylum at Aversa, near to Naples; 53 cases and 36 deaths in Naples itself; and most of the rest in the provinces of Caserta and Naples. Four imported cases (not included in the totals) were observed in Rome.

Cholera in Servia.

On Oct. 12th a case of cholera was reported by telegram from Belgrade; as it was spoken of as "a fresh case" it was presumably not the first. On the 23rd 2 further cases were recorded. No further details have yet been received as to the occurrence of cholera in Servia.

Cholera in Roumania.

On Oct. 4th and again on the 7th single cases of cholera were reported from Tultcha, at the apex of the delta at the mouths of the Danube. No other cases of the disease have been reported from any part of Roumania since the date of my last letter.

Cholera in Constantinople.

The following are the returns of cholera among the civilian population of this city since the outbreak began on Sept. 13th.

From Sept.	13th	to Sept.	26th	.....	22	cases,	9	deaths.
,,	,,	27th ,, Oct.	5th	.....	50	,,	30	,,
,, Oct.	6th	,, ,,	10th	.....	12	,,	7	,,
,,	,,	11th ,, ,,	17th	.....	10	,,	8	,,
,,	,,	18th ,, ,,	24th	.....	7	,,	7	,,

No case has been recorded since the last-named date, but one fatal case (of earlier date) has been added to the list, making in all 102 cases and 62 deaths. Until Oct. 26th no mention was made in the bulletins of the occurrence of cases among the troops. But on that date it was suddenly announced that 200 cases with 92 deaths had occurred in the men of the 1st Army Corps (which form the Constantinople garrison) between Sept. 27th and Oct. 23rd. There have consequently been over 300 known cases and over 150 deaths from the disease in this city in the last five weeks. The outbreak seems now to be subsiding, but the danger of a revival of the disease next year cannot be overlooked.

Cholera in Asiatic Turkey.

There has been a considerable decline in the epidemic of cholera in the vilayets of Erzerum and Van in the last four weeks. It will be recalled that in the week ending Sept. 22nd as many as 224 cases, with 138 deaths, were reported. The following are the figures for the succeeding weeks:—

Week ending	Sept.	29th	.....	145	cases,	96	deaths.	
,,	,,	Oct.	6th	.....	61	,,	43	,,
,,	,,	,,	13th	.....	13	,,	13	,,
,,	,,	,,	20th	.....	23	,,	22	,,

These figures bring the totals from the beginning of the outbreak on August 22nd to 543 cases, with 365 deaths. From consular reports, however, it becomes clear that these figures are considerably—and probably very greatly—below the truth.

Consular reports from the vilayet of Mamouret-ul-Aziz, of which Diarbekir is the centre, show that the disease reached there early in September; on the 6th of the month 5 cases occurred in a village three hours from Diarbekir; and some further cases followed. Later and more detailed news is still lacking for this vilayet.

The following are the returns for the town and vilayet of Trebizond since the beginning of the epidemic:—

From Sept.	16th	to Sept.	25th	.....	127	cases,	64	deaths.
,,	,,	27th ,, Oct.	3rd	.....	163	,,	98	,,
,, Oct.	4th	,, ,,	9th	.....	90	,,	40	,,
,,	,,	10th ,, ,,	16th	.....	109	,,	60	,,
,,	,,	17th ,, ,,	23rd	.....	23	,,	21	,,

Here also the figures must be accepted with great caution. The totals are put at 512 cases and 283 deaths.

The outbreak of cholera in the port of Zunguldak, on the Black Sea (the port for the coal mines of Heraclia), has not subsided, as shown by the following figures:—

From Oct.	1st	to Oct.	5th	.....	17	cases,	8	deaths.
,, ,,	6th	,, ,,	10th	.....	14	,,	7	,,
,, ,,	11th	,, ,,	16th	.....	12	,,	9	,,
,, ,,	17th	,, ,,	23rd	.....	20	,,	7	,,

The totals have therefore been 63 cases and 31 deaths.

On Oct. 8th news was received of the appearance of cholera at Khanikin, on the Turkish side of the Turco-Persian frontier; the first case apparently occurred on the 6th. Between that date and the 12th 8 cases and 8 deaths were recorded, followed by 2 other fatal cases before the 21st. Between the 17th and 22nd 7 other cases, with 4 deaths, occurred in the frontier lazaret at Khanikin. About this time cholera had appeared at Bagdad and at several other places along the Tigris Valley. At Bagdad the first 2 cases occurred on the 16th; down to the 23rd 34 cases and 26 deaths had been reported. At Shahraban 69 cases with 55 deaths, at Samara 17 cases with 15 deaths, at Kiazimieh 20 cases with 16 deaths, and smaller numbers elsewhere had occurred in the vilayet of Bagdad down to Oct. 23rd, bringing the totals to that date to 199 cases with 148 deaths. Several of these occurred in the temporary lazarets opened along the course of the river.

No indigenous cases have yet been reported from Syria; but on Oct. 17th and 18th two boatmen at Beirût, who had assisted in landing a batch of pilgrims from a Russian steamer (the s.s. *Voronezh*) fell ill with typical cholera (confirmed bacteriologically). It is remarkable that no known case of the disease had occurred among the pilgrims themselves. The ship had come from an infected port, and had undergone quarantine and disinfection in the Turkish lazarets. The boatmen were themselves in quarantine in the Beirût lazaret when they developed the disease. The infection did not spread outside the lazaret.

The first certain cases at Basra, near the head of the Persian Gulf, were reported on Oct. 21st, when 3 cases, 1 in a person who had come from Bagdad, were registered. On the 26th 5 cases and 3 deaths occurred there, and on the 27th 5 cases, with 4 deaths.

Cholera in Muscat.

On Sept. 21st news was received here that cholera had broken out at Muscat; down to the 24th 17 cases, with 13 deaths, had been recorded. In the following week there were 6 cases, with 4 deaths. On Oct. 10th the port was declared cholera-free, but on the 23rd the disease was again reported present; 5 further cases, with 4 deaths, had occurred.

Cholera in Persia.

On Oct. 6th 7 cases and 5 deaths from cholera were reported from Kermanshah, on the Persian side of the Turco-Persian frontier. The disease broke out here almost at the same time as at Khanikin, on the Turkish side of the frontier. The disease spread rapidly; by the 11th 67 cases, with 46 deaths, had been registered. In the week ending the 17th 227 deaths from cholera occurred in this by no means large town, and all places situated between Hamadan and Kasrisherin were said to be infected. In the following week the cholera mortality sank to 107. Information as to the course of the epidemic in other parts of Persia is still very scanty, but the disease has been, or is, present in Meshed, at Badjguiran in Khorassan, at Ardebil and Sorab in the Tabriz neighbourhood, and at Enzeli on the Caspian. At Meshed the disease appeared on Sept. 11th, and in three days 28 cases with 8 deaths had occurred.

Cholera in Tripoli (Africa).

The first known cases of cholera here were seen on Oct. 3rd, when two Jewish women in the Israelitish quarter of the town fell ill; 5 other cases occurred in the same house, and 4 of the 7 cases died. The disease spread elsewhere in the town; by the 20th from 4 to 8 cases were being reported daily; on the 26th the number rose to 13, and on the 27th to 16 cases, with 10 deaths. Next day there were only 11 cases with 7 deaths, and finally, on the 29th, 4 cases and 4 deaths. The source of the infection in Tripoli is unknown; but there is frequent communication between its shores and those of Italy, and the first rumour of cholera was the occurrence, on Sept. 15th, of two suspicious cases on an Italian steamer which arrived in Tripoli from Italy; later, however, these were stated to have been cases of gastro-enteritis.

Cholera in Tunisia.

The only appearance of cholera in Tunisia that has been officially announced has been the occurrence of a few cases in the island of Jerba, not far from the Tunis-Tripoli frontier. On Oct. 3rd 2 deaths from cholera occurred here; on the 5th there were 2 more cases in the same house; between that date and the 25th no news was received, but on the last-named date there were 7 cases and 6 deaths.

Conclusion.

From the above brief summaries of reports from many countries it will be seen that the infection of cholera is or has been recently extremely widely spread; it has caused a more or less high mortality throughout (practically) all European and Asiatic Russia, extending from the Baltic and White Seas to the Pacific; it has been present, and in some places fairly active, in Germany, Austria, Hungary, Bulgaria, Roumania, Servia, Turkey in Europe, Asia Minor, Mesopotamia, Persia, the sultanate of Oman (Muscat), and in Tripoli and Tunisia on the north shores of Africa. The coasts of the Mediterranean, Sea of Marmara, the Black Sea, and the Persian Gulf (for Basra is close to the waters of the Gulf) have all been invaded by the infection, and it will be surprising if the germs of disease thus widely spread do not next year, and perhaps for years to come, give rise here and there to recurrent epidemics of greater or less severity.

Constantinople, Oct. 29th.

THE PHYSICAL EFFICIENCY OF RESERVISTS.

IN THE LANCET of Nov. 5th, pp. 1377–8, there appeared a report on the "Recent Army Manœuvres in the South of England" by "A Special Correspondent," the concluding paragraph of which has been taken exception to by our contemporary the *United Service Gazette* on p. 367 of its issue of Nov. 10th under the heading "The Special Reserve and Militia." The paragraph in question ran as follows:—

> Two classes of reservists were mobilised with the Second Aldershot Division, army reservists and special reservists. It was noted that many of the former were men of more or less advanced life and unfit for the arduous daily marching; many more suffered from advanced dental caries. Amongst the special reservists the opposite extreme was notable; many of these were mere boys and quite physically unfit to march the distances covered by the troops. In one column alone some 250 reservists were reported as having been so incapacitated by the marching that it was found necessary to transfer them to the Base Hospital at Aldershot. Such an occurrence as this becomes all the more grave when it is considered that the climatic and other conditions under which the army manœuvres occurred were so favourable. The weather was all that could be desired and the marches were not excessively long, the rations were generous, and tents were used almost every night. What would have been the experience under adverse conditions?

This paragraph, the *United Service Gazette* complains:—

> is couched in such vague, incoherent terms that it is likely to give rise to a good deal of misunderstanding and to play into the hands of that prejudiced body who never miss an opportunity of throwing a stone at the Special Reserve and the Territorial Force, in furtherance of their gospel of compulsion.

Our critic continues:—

> Now to the conundrum which THE LANCET propounds we have no objection to offer, inasmuch as it is serious to contemplate what would happen in the case of actual hostilities, when such casualties occur in the piping times of peace. But what we have to complain of is the reckless, ambiguous way in which THE LANCET sums up the situation. After dealing with the two groups of Reservists separately, in terms the reverse of complimentary, THE LANCET lumps them together in figuring out the casualties. And this is where inexcusable carelessness comes in, for an authoritative organ of this description having found little difficulty in obtaining the exact number of casualties, could easily, had it been so minded, have gathered separate statistics for each body and so have differentiated between them. It was of the highest importance that this should have been done, not only as an act of common justice to the Special Reserve, but also in fairness to the Regular Reserve. As it is, either is suffering from the stigma attaching to the other. Sweeping statements of a general character are always to be regarded with profound suspicion as they may mean anything or nothing, and are usually unreliable. Specific statements giving concrete instances are, on the other hand, of value, as they afford means of direct investigation with resultant confirmation or refutation.

Our answer to the charges of vagueness, incoherence, recklessness, ambiguity, and so on is that the statement is specific and coherent and in no way reckless or ambiguous. The statement on analysis stands: "That in the Second

Aldershot Division some 250 reservists were reported as having been so incapacitated by the marching that it was found necessary to transfer them to the base hospital at Aldershot." Our Special Correspondent stopped where he did because he was reporting to us under our instructions upon the medical aspect of these manœuvres and the physical aspect of the men as a whole.

The *United Service Gazette* goes on to say:—

In the present instance having nothing definite to go upon we yet took the trouble to inquire into the case of at least one Aldershot corps that had its special reserve battalion attached to it throughout the manœuvres. That particular unit was the 1st Battalion Royal Irish Fusiliers, whose 3rd battalion was brought over from Armagh and joined forces with the regular unit as a composite battalion for manœuvre work. Not a solitary man of this Special Reserve unit "fell out" throughout the whole course of the operations—not one; a fact which redounds highly to the credit of the force. If therefore the strictures passed by THE LANCET refer principally to the Regular Reserve—and it looks like it—it affords much food for reflection for the authorities, and is something to be digested by the conscriptionists, who want the whole nation turned into an armed camp.

Why, may we ask, did our contemporary, "having nothing definite to go upon," only take "the trouble to inquire into the case of at least one Aldershot corps." The war establishment of a division shows no less than 12 infantry battalions as comprising it, yet our contemporary is content to select *one* regiment to test the correctness of our correspondent's statement, and that a regiment famous for its good marching capabilities. Our contemporary by extending its inquiries could have arrived at the names of the units which supplied the casualties and could have published the names if it chose. We may also ask the *United Service Gazette* why a regimental reference was thought sufficient? Where a medical question was at stake inquiry was indicated rather amongst the officers of the Royal Army Medical Corps, whose daily duty it was to pick up the men who fell out on the line of march, and to see that they were carried in the ambulance wagons, and whose arduous task it was also to see by the light of a candle the long stream of weary men who reported "footsore" or "sick" on arrival in camp.

Our contemporary quotes extracts from Mr. Robert Blatchford's views on the Special Reserve, which force, it states, "he treats with a greater sense of justice than THE LANCET." Major-General J. M. Grierson, C.V.O., C.B., C.M.G., is also quoted as having said to Mr. Blatchford, "*and certainly behind the brigades I saw there was not a single straggler, nor did I see one man in the ambulance.*" Is this a denial that there were any men in the ambulances? It is quite probable that there was not a single straggler left behind any brigade, for they were all picked up and put in the ambulance wagons, which we are informed were full to overflowing on the first few days of the week.

The *United Service Gazette* goes on to say:—

The inexperienced correspondent of THE LANCET who appears to have grasped hastily at his facts and lacked the knowledge to sort and arrange them in that orderly manner which befits the matter published in such an authoritative organ of the medical profession. Indeed, after reading the pessimistic and jaundiced views of this sapient contributor to our best known medical journal it is heartening to turn to Mr. Blatchford's cheery pendant to his friendly criticism of the lads of the Special Reserve.

We recognise the politeness of this reference to THE LANCET, but exactly because we feel our responsibilities we take care not to publish the views of inexperienced persons. Our experienced Special Correspondent might well agree with what Mr. Blatchford has said (as quoted by the *United Service Gazette*): "Speaking only of what I have seen I should say that the Special Reserve have done as well as could be expected."

The *United Service Gazette* sums up the case against THE LANCET as follows:—

Here there are two strong pieces of incontrovertible evidence—that furnished by the Royal Irish Fusiliers and that supplied by Mr. Robert Blatchford—to rebut the misleading, not to say reckless, criticism passed on the Special Reserve by THE LANCET, and as that journal has no axe to grind in disparaging voluntary service in order to exalt conscription, we hope its editor will, in common fairness to the Special Reserve, go further into the matter than what, on the surface, he already appears to have done.

We remain impenitent, and satisfied with the thoughtful words of our much-abused correspondent. We hold no brief for conscription, and no one who had read our pages in the least carefully could possibly suggest that we wished to disparage voluntary service. To report accurately upon any medical matter arising out of the army manœuvres is clearly our duty, and the principle of voluntary service is not damaged by such accuracy, but supported.

HOSPITALS AND TAXATION.

IN a review of the annual report of King Edward's Hospital Fund in THE LANCET of Oct. 1st reference was made to the necessary retention of the heading "rates and taxes" among the items of expenditure appearing in hospital accounts, with the suggestion that in consideration of their services to the State hospitals might be freed altogether from contributions to the Imperial revenue. Before proceeding to discuss the privileges already enjoyed by hospitals in this respect, which admittedly are considerable, it may fairly be said that a strong case might also be made out in respect of local taxation, as to which hospitals are in the same position as private individuals or commercial enterprises, unless they enjoy exemption of a special kind under the provisions of a local Act of Parliament affecting them. The debt of the locality to the hospital within its borders is certainly not less than that of the State, for if the good work done in healing the sick and injured and in promoting the progress of medical science tends to the benefit of the nation at large, it even more directly lessens the demand for local taxation by keeping "off the rates" persons who owing to temporary or permanent disablement would otherwise have to seek the assistance of the guardians of the poor. The guardians, moreover, in many localities where their own accommodation is insufficient for serious cases in need of medical or surgical aid, have to entrust those under their charge to voluntary hospitals, and if a payment or contribution is made in return for this benefit the question of its adequacy would have to be considered before pleading it as a defence to a claim for the remission at any rate of the poor-rate. The effects resulting from the work of the hospitals have, however, not been confined to the relief of the poor-rate. The education authority and the sanitary authority, to mention two of the most important branches of local administration, would find their expenses heavier in many places if the voluntary hospitals did not indirectly contribute to lighten them by giving medical aid to poor parents by taking a prominent part in the diffusion of higher ideals in matters pertaining to the health of children and in a variety of other ways.

We pass, however, to the survey of the position of the hospitals with regard to taxation by the Government. In this respect they enjoy already, as has been said above, exemptions, but it must be recollected that these remissions are not given without substantial consideration in the form of public service freely rendered to the community. The Finance Act (1910) contains special provisions affecting charitable institutions, prompted by the same spirit which actuated previous statutory recognition of the great work done in the United Kingdom by voluntary charity, and the new provisions referred to follow lines already laid down. It will be remembered that the Legislature concerns itself with charity and charitable institutions generally, and that hospitals for the sick are never named as such, but are accorded privileges in so far as they are charitable institutions. With regard to income-tax, hospitals received important recognition under the Act which in 1842 granted to Her late Majesty "duties on profits arising from property, professions, trades, and offices." Subject to provisions as to formalities necessary to prevent abuses, and to conditions securing the strictly charitable purposes for which the premises and incomes affected are to be employed, hospitals are exempt from taxation in respect of their buildings and premises and of repairs to these; in respect of rents and profits of lands; in respect of their stock or dividends and annual profits: while provision is made specially in another Act, the Charitable Trusts Act, 1855, for the mode of exemption from tax of their incomes arising from stock in the Funds. Part IV. of the Finance Act, 1910, is to be construed with the Income Tax Act, 1842, referred to above, and these two Acts and the Income Tax Act, 1853, are to be referred to as "The Income Tax Acts," the exemption described being thus not affected. Hospitals are exempt from Inhabited House Duty under the House Tax Act, 1808, being included in a provision to that effect relating to "any hospital, charity school, or house provided for the reception or relief of poor persons." Cases have been brought forward to decide the effect of the reception of paying patients upon this exemption, and the result of the judgments given appears to be that the contributions of

paying patients do not necessarily deprive the hospital of its right to avoid Inhabited House Duty. The cases upon this subject, and a useful summary of the law in general as to hospitals and taxation, will be found in A. T. Murray's "Law of Hospitals."

Hospitals then in existence were exempted from land tax by the Land Tax Act, 1797, as to sites actually occupied by them. We need not recite the various duties payable upon land under the Finance Act. 1910, but quote Section 37 (1), which states the exemption affecting hospitals:—

> No reversion duty or undeveloped land duty under this part of this Act shall be charged in respect of land or any interest in land held by or on behalf of any governing body constituted for charitable purposes while the land is occupied and used by such a body for the purposes of that body, and increment duty shall not be collected on any periodical occasion in respect of the fee simple of or any interest in any land held for the purposes of such a body, whether it is occupied or used by that body or not, without prejudice, however, to the collection of the duty on any other occasion.

The expression "governing body constituted for charitable purposes" includes any person or body of persons who have the right of holding, or any power of government of or management over any property appropriated for charitable purposes (including property appropriated for the purpose of any of the naval or military forces of the Crown), and includes any "corporation sole" and all universities, colleges, schools, and other institutions for the promotion of literature, science, or art. It is to be observed that, except with regard to the "periodical occasions," this section affects only the land occupied by the governing body for its own purposes, and that therefore the exemption granted does not apply, for example, to land let by it to tenants. Its land thus occupied is exempt from such increment duty as otherwise would be levied on the "periodical occasions" referred to, but "without prejudice to the collection of the duty on any other occasion"—i.e., on the land being sold increment duty will be payable on the basis of the increment since 1909, if such duty has not been paid meanwhile.

Corporate bodies whose property, owing to their continuous existence, would otherwise contribute nothing to the revenue to correspond with the probate, legacy, and succession duties accruing where individual owners are concerned, are taxed by the Customs and Inland Revenue, Act, 1885, at the rate of 5 per cent. upon the annual value, income, or profits of their possessions, but there is an exemption from this "corporation duty" which covers the case of hospitals by excluding income or profits "applied for any charitable purpose."

So substantial a portion of the funds of hospitals is derived from the gifts of wealthy persons of mature age or from bequests taking effect when they die, that the various "death duties" affect them considerably. Legacy or succession duty is charged at the highest rate, 10 per cent., upon all gifts made to hospitals which would be liable to such duty if the property passed to individuals, unless, of course, the testator provides that the gift shall be "free of duty" and his estate is sufficient to render it such. It will be remembered that under the Finance Act, 1910, the amount of the estate passing at death is to be calculated so as to include property given away by the owner within three years of his decease, the period of three years being substituted for the one-year limit previously provided in this respect. From this change, however, gifts made for public or charitable purposes are (*inter alia*) excepted, and for these the one-year rule remains in force. This is a concession of advantage to the donees affected, as no doubt it should tend to encourage donations during the life-time of the giver, or at all events should diminish the discouragement introduced by the three-years rule. A donor who knew that his estate would cease at the end of a year to be liable to duty in respect of the property forming the subject of the gift at the end of one year, would presumably give more freely, than if this liability were extended to three years. Such liability, moreover, as may directly affect the property given will end after a year instead of lasting for three years.

It will be seen from the above that on the whole hospitals, in common with other charitable institutions and foundations of public benefit, have had their claims to special consideration recognised to a very large extent. If they "ask for more," both in respect of such loss as they may suffer through the payment of heavy legacy duties, and through their liability as ratepayers, they have more arguments than one in support of their claim for extended privileges. To put these briefly, their expenses are vastly heavier than they once were, and must continue to increase, representing, however, vastly greater benefits conferred by them on their patients owing to improved but more costly methods in medicine and surgery. These improved methods are largely due to discoveries made in the hospitals themselves. The burden of rates increases annually. The increasing burden of modern taxation tends to diminish the revenues of hospitals by checking the flow of gifts from the living and of bequests from the dead.

SANITATION IN INDIA.

(*Continued from p. 1144.*)

Hospitals and Dispensaries.

SOME idea of the scale on which medical work is carried on in the province of Bengal may be gathered from the fact that the total number of patients treated during 1909 amounted to 3,437,053; most of these were, of course, out-door attendances, but the indoor patients numbered 69,130, of whom 51,860 were either cured or relieved, and 7230 died. The Medical College Hospital in Calcutta had nearly a thousand fewer in-patients than in 1908, some of the wards having been closed for quadrennial repairs. Small-pox and plague were rife in the city, but malaria and cholera were not so prevalent. A regrettable occurrence was the death of three children in the Presidency hospital from cholera, they being under treatment for other complaints; they are said to have partaken of food given by the nurses, among whom there was at the time a virulent outbreak of the disease. Beri beri and epidemic dropsy caused relatively numerous admissions, and an inquiry is now being conducted into the prevalence of these diseases by Captain E. D. W. Greig, I.M.S. The officiating Inspector-General of Civil Hospitals, Lieutenant-Colonel F. J. Drury, I.M.S., notes that nursing is still the weak point in most hospitals for want of funds; the whole question of nursing is now under consideration. In the enormous task of fighting malaria much good has been done by deputing civil hospital assistants to malarious districts to distribute medical aid; 19 were detailed for this duty, and their work was much appreciated. Over a million and a half packets (10 grains) and tablets (3½ grains) of quinine were sold to the people, who now much appreciate the value of the drug as a prophylactic. In the district of Champaran, bordering on Nepaul, the cases of goitre (25,411) amounted to nearly one-fifth of the total number of patients treated. The surgical operations performed numbered 174,127; death resulted in 575 cases, but 162,928 are returned as cured.

In the province of Eastern Bengal and Assam the number of patients treated in dispensaries reached a total of 3,466,068, of whom 25,755 were indoor cases; 19,082 of these were cured or relieved and 2094 died. Malarial fevers were the most frequent cause of illness, and next to them intestinal worms. In the Mymensingh district occurred 21,193 cases of goitre, about one-third of the total for the whole province.

In Upper and Lower Burma the total number of cases treated in dispensaries was 1,241,503, of whom 53,488 were indoor patients; 44,926 were cured or relieved, and 3909 died. The important event of the year was the opening of the new General Hospital at Rangoon, which will accommodate 518 patients. Colonel H. St. Clare Carruthers, I.M.S., officiating Inspector-General of Hospitals, states that this is an up-to-date hospital, with new operation theatre and appliances for the aseptic treatment of wounds, &c. There were 1032 major operations during the year; the mortality was only 7·2 per cent., compared with 10·6 in 1908; moreover, there were 50 more abdominal operations than in the previous year. A scheme for training ten Burmese and Karen women in sick nursing has been prepared, and is only awaiting provision of the necessary funds.

In the Central Provinces and Berar the total cases treated in dispensaries amounted to 1,779,060, the indoor cases numbering 13,776. There was a decrease in malarial fever, but this is ascribed to the presence of plague, at which time there is a disinclination on the part of those suffering from fever to attend the dispensaries. Cholera was also prevalent during the year.

In the recently constituted North-West Frontier province a considerable increase in the number treated of

both indoor and outdoor patients is recorded, and viewed with satisfaction by the Chief Commissioner and by Lieutenant-Colonel G. W. P. Dennys, I.M.S., the Administrative Medical Officer, as it shows that the people are now appreciating the medical assistance provided. The year has not been an unhealthy one. Great improvements have been made in the Egerton Hospital at Peshawar, and new hospitals and dispensaries have been opened at various places. There is no doubt that the humanising and civilising effects of medical and surgical treatment are making themselves felt among the wild population of this borderland. A great increase took place in the number of operations performed, especially in those for cataract and vesical calculus, the Bannu and Peshawar Mission Hospitals and the Egerton Hospital at Peshawar being especially mentioned. Complaint is made of the difficulty in getting men of the assistant surgeon and hospital assistant classes to serve in the province. This part of the country does not itself produce men of this sort, and they will not come from other parts of India to "serve in a province like this, where the amenities of life are so few, where the danger to life and property is so great, and in which they are to all intents and purposes exiles from their homes, and serving among people with whom they have little in common." It is to be hoped that this statement by the Administrative Medical Officer will meet with attention from the provincial and central authorities. The total number of cases treated was 699,796, of whom 11,304 were indoor patients; 9863 of these were cured or relieved, and 323 died. Malarial fevers caused the greatest number of admissions, but these were much fewer than in the previous year. In spite of heavy rainfall 1909 was not a bad fever year; also there was very little cholera.

In the United Provinces the total number of patients treated in hospitals and dispensaries was 4,936,599; of these, 69,741 were indoor patients; 56,241 were cured or relieved, and 3452 died. Although the malaria outbreak of 1908 had been the most severe since 1879, an even larger number of patients—no less than 1,492,487—were treated for these fevers in 1909. The greatest numbers treated for fever were at Gonda (136,942) and Lucknow (110,032). Colonel C. C. Manifold, I.M.S., Inspector-General of Hospitals, informs us that an inquiry was instituted at Cawnpore into the excessive mortality of infants under one year. It was found to be largely due to tetanus or septic disease at birth, the cut surface of the cord being smeared with all sorts of deleterious matter, often mixed with mould containing the tetanus bacillus. Deaths from so-called convulsions are often due to tetanus.

From the report on the Punjab dispensaries by Colonel T. E. L. Bate, I.M.S., Inspector-General of Hospitals, it appears that the total number of patients treated reached 4,511,751. Of these, 77,935 were in-patients, 67,938 were either cured or relieved, and 2492 died. A considerable decline took place in the malarial cases, compared with the previous years; also a reduction in dysentery and diarrhœa. The province was free from epidemic disease during 1909.

Jails.

The administration report on the Bombay Jail Department for 1909 by Lieutenant-Colonel J. Jackson, I.M.S., Inspector-General, deals with a total number of 23,194 prisoners, the daily average strength having been 8984. The death-rate during the year was 17·5 per 1000, practically the same as in 1908, and the lowest recorded for the last 30 years, except in 1905, when it was 17·1. Of the 157 prisoners who died, 4 were admitted in a dying condition and 38 in bad health; the chief causes of death were pneumonia (3·2), tubercle, and dysentery (2·0 per 1000). Many, if not most, Indian prisons are in a chronic state of overcrowding, which leads to difficulties in maintaining a sanitary condition of the prisoners. At Dharwar there were 3 cases of plague, with two deaths. Although the prison was overcrowded no spread occurred, all the prisoners having been inoculated. Rats had been dying in the prison for some time, and the disease was prevalent in the neighbouring village of Saidapur. The common prison at Bombay had 17 deaths, giving the high death-rate of 42·4 per 1000, but 7 were already ill when admitted. "The Bombay habitual is a syphilitic, malaria-sodden, debauched person. Every healthy prisoner is sent to the Deccan gang, and the residue are prisoners of poor physique." At the House of Correction at Bombay there were 6 deaths, 4 occurring in men who were in bad health on admission to prison. At Ahmedabad 8 deaths occurred from dysentery and diarrhœa. It is stated that special care is being devoted to the preparation of food and the regular examination of any prisoner losing weight. Cerebro-spinal meningitis caused 17 admissions and 5 deaths at the Central Prison, Hyderabad (Sind). At the Yerravda Central Prison, the largest in the Presidency, with an average population of 1515, the death-rate was only 14·5 per 1000, which is a very satisfactory figure. Four out of the 20 deaths that occurred were due to senile decay. Various improvements in dieting were carried out during the year, extra rations were issued to weakly prisoners and convalescents, extra warm clothing given when necessary; and lastly, as a result of prison detention it was found that of the total number of prisoners who were discharged during the year (16,582) no less than 54·9 per cent. gained weight, and 28·8 per cent. remained stationary.

In the province of Eastern Bengal and Assam the total prison population was 45,182, the daily average being 7893. 226 deaths occurred, being in a ratio of 28·63 per 1000. Cholera caused four deaths, distributed sporadically over four separate outbreaks. Dysentery caused 57 deaths out of 1357 cases. Major B. J. Singh, I.M.S., Inspector-General of Prisons, is of opinion that its prevalence is connected with the condition of pyorrhœa alveolaris. In two jails where dysentery was prevalent he found a large majority of the prisoners to be suffering from this condition of the mouth; while at two other jails, where all the men's teeth and gums were taken care of, and in a healthy condition, there were hardly any cases of dysentery. Quinine was issued as a malaria prophylactic with very good results. Dysentery was the cause of the highest death-rate, 8·3 per 1000; and pneumonia of the next highest, 4·5 per 1000. Of the 12,841 prisoners discharged during the year, 56·6 per cent. had gained, and 26 per cent. had neither lost nor gained, weight since admission.

In the United Provinces of Agra and Oudh, according to the report of Lieutenant-Colonel C. Mactaggart, I.M.S., Inspector-General, the average number of prisoners during the year was 26,075, and the death-rate 23·7 per 1000. This was nearly as high a rate as in the very feverish year 1908; the malarial epidemic, indeed, continued during the early months of 1909. In almost every jail a large number of prisoners were admitted with enlarged spleens and other signs of malarial cachexia. Bareilly Central Prison and District Jail, Lucknow Central Prison, and Saharanpur Jail, all had high death-rates (over 40 per 1000). At Lucknow Central Prison cholera broke out, necessitating the removal of over 800 convicts into camp at the end of July, while the rains were very heavy. Cholera caused 20 deaths, dysentery 20, and diarrhœa 9; the total mortality was 44·9 per 1000. There were also 3 cases of cholera and 2 deaths at the Lucknow District Jail. In neither of these prisons was there any infection of the water or food-supply, and it was thought to have been spread through flies. The Central Prison and the District Jail at Bareilly had the high death-rates of 40 and 42·7 per 1000 respectively; they both receive prisoners from the highly malarious Terai districts, most of them having enlarged spleens. Saharanpur had the highest death-rate of 43·2 per 1000, due to pneumonia, dysentery, and malaria. Malaria was prevalent throughout the provinces, and quinine was administered prophylactically in 15-grain doses to nearly all prisoners from August to October, as in the Punjab jails, but Lieutenant-Colonel Mactaggart admits that he is disappointed in regard to its prophylactic value.

In Lieutenant-Colonel G. F. W. Braide's report on the Punjab jails attention is drawn to the unenviable notoriety of the Ferozepore district, which heads the list in regard to prevalence of crime; this is considered to be mainly the result of the spread of drinking habits amongst the flourishing peasantry. "It is the same all the world over, alcohol and crime walk ever hand in hand; and it is sad to contemplate the tainting of the sober, robust, hard-working Punjabi with this social evil." The figures for malaria are remarkable; from an average convict population of 10,514, there were only 1525 admissions to hospital and two deaths from malarial fever, being in a ratio of 145 and 0·19 per 1000 respectively. Both deaths occurred at Gurdaspur jail, and there seems to have been an uncertainty whether they were really due to malaria or not. Of the cases, only 408 were observed during the four autumn months when the prisoners were

under the prophylactic influence of quinine. During this period some remarkable returns were made; for instance, in the Lahore Central, Rawal Pindi, Gujrat, and Ludhiana jails, as few as three admissions and under were shown. Following, as it did, on the good results obtained in 1908, Lieutenant-Colonel Braide reiterates his conviction that this "complete immunity is obtained by quinine prophylaxis. If the prison population were not a floating one, if an admission dose throughout the year were not prohibitive on account of cost, and if there were no slackness of administration, there would be no malaria in Punjab jails." In 1908, an excessively malarious year, the admission-rate from fever was only 164 per 1000, the mean-rate for 1902–06 having been 365. Colonel Braide's method that proved so signally successful was, during August to November, to give every prisoner on admission 10 grains, and once a week afterwards 15 grains, of quinine.

The medical history of the jails in Burma for 1909 has been very satisfactory; though not quite so favourable as in the three previous years, both admission- and death-rates have been lower than at any preceding period. At Mandalay the health was exceptionally good until July, when an outbreak of 37 cases of cholera occurred with 28 deaths; the disease was considered to have been introduced and propagated by flies. Dysentery caused 257 admissions and 23 deaths, and tuberculous disease 121 admissions and 60 deaths, almost all in the jails of Lower Burma; in other respects the health of the prisoners was good.

Lieutenant-Colonel W. B. Lane's report on the jails of the Central Provinces is short and pithy. The total jail population amounted to 16,409, the average strength being 3849, and the death-rate was 15·59 per 1000. At Raipur and Jubbulpore numerous cases of dysentery and diarrhœa were noticed to occur in prisoners soon after their admission to prison. Lieutenant-Colonel Lane feels more and more sure that this is due to "unaccustomed plenty." Major C. H. Bensley also believes that it is often the result of overfeeding. "The general public in India consider the prisoner too well fed, and prisoners on release preach about the good and regular diet" (p. 7). Accordingly penal diet has been largely prescribed, with or without solitary confinement.

The North-West Frontier province had a total jail population of 9133, the average number present being 1218; the death-rate was 22·99 per 1000, dysentery and pneumonia being the most fatal diseases. Malaria was not very prevalent, but considering that all prisoners received prophylactic quinine treatment Lieutenant-Colonel Dennys considers the results to be disappointing. He doubts if all the cases really were malaria, suggesting that some were due to sand-fly (phlebotomus) fever. A further series of experiments on quinine prophylaxis was carried out at Peshawar and Dera Ismail Khan jails; at each jail three gangs were formed of equal numbers of prisoners, A gang receiving no quinine, B gang receiving 5 grains every morning, and C gang 15 grains every fifth and sixth day. This was carried out from July 1st to Nov. 30th. At Peshawar each gang consisted of 30 men; 11 in A gang, 6 in B gang, and 1 in C gang were admitted for malaria. At Dera Ismail Khan the gangs were of 47 men in each, and the malarial admissions in A, B, and C were respectively 26, 7, and 2. Another gang, X, "consisting of prisoners not included in the other three gangs who were in jail on July 1st and who were admitted after that date," received 15 grains every fifth and sixth day with C gang; they had 16 cases of fever. In each experiment the administration of 15 grains every fifth and sixth day gave the best results, whereas in 1908 5 grains every day had appeared to be the best treatment. Typhus fever broke out in Peshawar jail, causing 21 admissions and 5 deaths. The patients were treated in tents and bed bugs destroyed.

(To be concluded.)

"LUSUS," a book of verse and prose, by Mr. Christopher Stone, will be sold on behalf of the Prince Francis of Teck Memorial Fund for the endowment of the Middlesex Hospital. Copies, price 5*s.* each (postage 4*d.* extra), may be obtained from Mrs. Christopher Stone, 177, St. James's Court, Buckingham Gate; from Mr. B. H. Blackwell, the publisher, 51, Broad-street, Oxford; or from Messrs. J. and E. Bumpus, Messrs. Truslove and Hanson, and Messrs. Hatchards, who have kindly undertaken to sell copies for the Fund.

PRISONS IN EGYPT.[1]

As a help towards public security and morality the Egyptian Government now provides three convict prisons, ten central prisons in the chief towns, and nearly a hundred local gaols in the country districts. During the year, 93,165 prisoners were admitted, mostly of the male sex, and the daily average of persons in confinement was 13,420. More than three-quarters of the individuals sentenced to fine or imprisonment paid the amount, although the fines averaged 11*s.* This is a large sum in a country where the labourer does not, as a rule, gain more than 10*s.* a week, and it shows that the friends of the fellah possess money concealed for such an emergency, and also that imprisonment is considered rather more deterrent than it once was. The report is illustrated by several tables, from one of which we see that 55 per cent. of the sentenced prisoners were agricultural labourers, while artisans contributed 17, domestic servants 3, and Government officials no less than 7 per cent. Egypt is not exceptional in finding that penal servitude has no terror for the habitual offender, "who is usually back in prison again after a few weeks or months." An attempt to deal with these "in-and-out" prisoners is being made by the establishment of an Adult Reformatory, by which it is calculated that the expenditure need not be increased and some good may be achieved. Whipping, under the order of the courts, was administered to 3375 boys during the year, and 314 boys and 32 girls were admitted to the Juvenile Reformatory, more than half of whom were sentenced under the Waifs and Strays Law. It is satisfactory to note that of 117 boys released from this reformatory in 1907, 63 per cent. are reported by their employers to be doing well, though 13 per cent. have been reconvicted and 24 per cent. have been lost sight of.

Since 1901 certain prisoners have been allowed by a new law to elect to work out their sentence by forced labour, instead of going to prison, and this has the double advantage of reducing the overcrowded state of the prisons and of keeping minor delinquents from the contamination of prison life. The figures under this heading for 1909 show that 13,842 men elected to labour rather than go to prison, 407 of them failed to report themselves, and 737 others absconded before their allotted task was completed, but the remainder faithfully finished their appointed tale of work. Corporal and minor punishments considerably exceeded in figures those of the preceding year, the offences requiring these can partly be traced to the wave of unrest and discontent with constituted authority which has lately swept over Egypt.

Dr. R. G. Kirton, the chief medical officer of the department, in his report draws attention, not for the first time, to the congested state of all the prisons throughout the year, and attributes the comparative freedom from epidemics to the high standard of cleanliness and to the zeal of the Egyptian medical staff. He adds: "This overcrowding in the prisons makes them peculiarly liable to widespread infection. The tinder is present and may be lit at any moment. Epidemics in the prisons not only disorganise prison work and that of the judicial and public authorities, but are also a grave danger to the general public health." He has fully analysed the vital statistics of the year, and shows that the mortality per 1000 has been reduced from 13 6 in 1908 to 12·4 last year. More than half of the deaths occurred between the ages of 15 and 30 years. Infectious diseases were responsible for 15 deaths—namely, 7 from typhus, 4 from cerebro-spinal fever, 2 from relapsing fever, and 1 each from small-pox and erysipelas. Twenty-three deaths were due to phthisis, but the mortality per 1000 from this cause has been reduced to 1·7, from 4·1 in the year 1905. The seven deaths from typhus occurred at Tanta, which is one of the most overcrowded prisons and where there were 46 cases of what used to be called "jail fever." The total number of typhus cases which occurred in all the prisons was 64. Of relapsing fever there were 95 cases reported, of which 24 occurred in a batch of boys newly admitted from an institution. The decrease of late years in typhus and relapsing fevers is undoubtedly due to the greater cleanliness of the provincial prisons and to the war waged against bugs and lice. Twenty cases of leprosy were reported, and 927 cases of diarrhœa and dysentery were treated, a

[1] Report for the year 1909 of the Egyptian Prisons Department, Cairo. 1910. Pp. 90.

number which would doubtless be decreased if overcrowding could be prevented.

The net profit of the year on the prison industries works out at more than £16,000, being an improvement on the preceding year, and great credit is due to those who have to find regular occupations for 13,000 prisoners, drawn from a class of non-workers. The distribution of the boys in the reformatory in different trades comprised printers, book-binders, carpenters, shoemakers, tailors, tin-smiths, blacksmiths and fitters, farm workers, gardeners, and musicians, while the girls were taught sewing, laundry work, and cooking. The general improvement in Egyptian prisons of late years reflects great credit on Coles Pasha, C.M.G., the Director-General, who has had many years' experience of police and prison administration both in India and in Egypt. It is only a quarter of a century ago that the practice of the Egyptian authorities was to arrest not only everyone who might have been implicated in a crime, but also a number of their relatives as well as all the witnesses, whether they were on the side of the prosecution or of the defence, and when once in prison no distinction was made between those who were awaiting trial and the witnesses, who were imprisoned because it was more convenient to keep them in case they were wanted, than to set them at liberty.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8001 births and 4801 deaths were registered during the week ending Nov. 12th. The annual rate of mortality in these towns, which had been equal to 13·0 and 13·1 per 1000 in the two preceding weeks, rose to 14·8 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns averaged 13·3 per 1000. In London the death-rate during the same period, calculated on the probably over-estimated population, was also equal to 13·3 per 1000. The 4801 deaths from all causes registered in the 77 towns last week showed an increase of 551 upon the number in the previous week, and included 392 which were referred to the principal epidemic diseases, against 504, 425, and 361 in the three preceding weeks; of these 392 deaths, 136 resulted from measles, 110 from diarrhœa, 54 from diphtheria, 37 from whooping-cough, 32 from enteric fever, and 23 from scarlet fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·2 per 1000, against 1·6, 1·3, and 1·1 in the three preceding weeks. No death from any of these diseases was registered last week in Leicester, Croydon, South Shields, Hornsey, or in eight other smaller towns; the annual death-rates therefrom ranged upwards, however, to 3·2 in Brighton, 4·1 in Rhondda, 4·5 in West Hartlepool, 4·9 in Middlesbrough, and 6·5 in Tynemouth. The fatal cases of measles in the 77 towns, which had been 75, 107, and 101 in the three preceding weeks, further rose to 136 last week, and exceeded the number in any week since the beginning of June; they caused the highest annual rates, 1·9 in West Hartlepool, 3·2 in Brighton, and 5·5 in Tynemouth. The deaths attributed to diarrhœa, which had declined in the ten preceding weeks from 527 to 123, further fell last week to 110, and were proportionately most numerous in Rochdale, Burnley, Rhondda, and West Hartlepool. The deaths referred to diphtheria showed a further increase of 8 upon the numbers in recent weeks, and included 15 in London and West Ham, 4 in Bradford and in Newcastle-on-Tyne, and 3 in Norwich. The 37 fatal cases of whooping-cough exceeded by 5 the low number in the previous week; 7 were registered in London and 3 both in Bristol and in Liverpool. The deaths referred to enteric fever, which had been 30 and 29 in the two previous weeks, rose last week to 32, of which 12 occurred in London and its suburban districts, 3 in Portsmouth, and 2 both in Walsall and in Rhondda. The 23 fatal cases of scarlet fever showed a decline of 7 from the number in the previous week, but included 6 in Liverpool and 3 in Leeds. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospital, which had steadily increased in the 12 preceding weeks from 1428 to 1856, had further risen to 1882 on Saturday last; 239 new cases of this disease were admitted to these hospitals during last week, against 221 and 188 in the two previous weeks. The 1476 deaths from all causes in London last week included 319 which were referred to pneumonia and other diseases of the respiratory system, against 194, 234, and 246 in the three preceding weeks, and exceeded by 36 the corrected average number in the corresponding week of the five years 1905–09. The causes of 40, or 0·8 per cent., of the deaths registered during last week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Sheffield, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Hull, Nottingham, and in 49 other smaller towns; the 40 uncertified causes of death in the 77 towns last week included 7 in Birmingham, 5 in Liverpool, and 4 in Gateshead.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 784 births and 484 deaths were registered during the week ending Nov. 12th. The annual rate of mortality in these towns, which had been equal to 12·7 and 13·6 per 1000 in the two preceding weeks, declined again to 13·3 in the week under notice. During the first six weeks of the current quarter the death-rate in these eight towns averaged 13·3 per 1000, and corresponded with the mean rate during the same period in the 77 largest English towns. The annual death-rates in the eight Scotch towns last week ranged from 8·4 and 10·2 in Perth and Leith, to 14·9 in Greenock, and 15·3 in Dundee. The 484 deaths from all causes in the eight towns last week showed a decline of 8 from the number in the previous week, and included 47 which were referred to the principal epidemic diseases, against 48 and 56 in the two preceding weeks; of these 47 deaths, 17 resulted from diarrhœa, 11 from diphtheria, 7 from scarlet fever, 7 from whooping-cough, 4 from "fever," and 1 from measles, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·3 per 1000, and slightly exceeded the rate from the same diseases in the 77 English towns. The deaths attributed to diarrhœa in the Scotch towns, which had declined in the six preceding weeks from 51 to 23, further fell last week to 17; they included 6 in Glasgow, 4 in Dundee, and 2 both in Edinburgh and in Greenock. The 11 fatal cases of diphtheria showed a decline of 5 from the high number in the previous week, but included 6 in Glasgow and 3 in Dundee. Of the 7 deaths from scarlet fever, 5 occurred in Glasgow and 2 in Dundee; and the 7 fatal cases of whooping-cough (corresponding with the number in the previous week), included 4 in Glasgow. The 4 deaths referred to "fever" were all returned in Glasgow; 3 were certified as enteric fever and 1 as cerebro-spinal meningitis. The fatal case of measles occurred in Edinburgh. The deaths referred to diseases of the respiratory system in the eight towns, which had been 72 and 84 in the two preceding weeks, declined to 65 last week, and were 50 below the number in the corresponding week of last year. The causes of 18, or 3·7 per cent., of the deaths in the eight towns last week were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·8 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 555 births and 358 deaths were registered during the week ending Nov. 12th. The mean annual rate of mortality in these towns, which had been equal to 17·4, 16·8, and 15·1 per 1000 in the three preceding weeks, rose again to 16·2 in the week under notice. During the first six weeks of the current quarter the annual death-rate in these Irish towns averaged 16 4 per 1000; the mean rate during the same period did not exceed 13·3 in the 77 largest English towns and in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·1 in Dublin, 16·3 in Belfast, 15·8 in Cork, 15·6 in Londonderry, 6·8 in Limerick, and 15·6 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 17·0 per

1000. The 358 deaths from all causes in the 22 town districts last week showed an increase of 14 upon the number in the previous week, and included 27 which were referred to the principal epidemic diseases, against 42, 33, and 28 in the three preceding weeks; these 27 deaths were equal to an annual rate of 1·2 per 1000, and corresponded with the rate from the same diseases last week in the 77 towns, the rate in the eight Scotch towns being 1·3. The 27 deaths from these epidemic diseases in the Irish towns last week included 11 from diarrhœa, 6 from whooping-cough, 5 from diphtheria, 3 from measles, and 1 each from scarlet fever and enteric fever, but not one from small-pox. The deaths attributed to diarrhœa, which had been 20 and 14 in the two preceding weeks, further declined to 11 last week, of which 3 occurred in Dublin, 4 in Belfast, and 2 in Londonderry. Of the 6 fatal cases of whooping-cough 4 were returned in Dublin and 2 in Wexford; and the 5 deaths from diphtheria included 2 in Dublin and 2 in Dundalk. Two of the 3 fatal cases of measles and the death from scarlet fever occurred in Lurgan. The death referred to enteric fever was registered in Drogheda. The deaths in the 22 towns last week included 88 which were referred to pneumonia and other diseases of the respiratory system, against 66 and 60 in the two preceding weeks. The causes of 17, or 5·1 per cent., of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified deaths last week did not exceed 0·8 per cent., while in the eight Scotch towns it was equal to 3·7 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following Staff-Surgeons have been promoted to the rank of Fleet-Surgeon in His Majesty's Fleet: William Bernera Macleod, Arthur Harry Hingston Vizard, Harry Spicer, Edward Thomas Philip Eames, John Alexander Lanford Campbell, Harold Paget Jones (dated Nov. 14th, 1910).

The following appointment is notified:—Staff-Surgeon: P. H. M. Star to the *Leander*, additional, for destroyers.

ROYAL ARMY MEDICAL CORPS.

Captain Robert B. Black, from the Seconded List, is restored to the establishment (dated Nov. 1st, 1910).

The undermentioned Lieutenants are confirmed in their rank:—Frederick R. Laing and John T. Simson.

Colonel T. J. R. Lucas, C.B., principal medical officer of the First (Peshawar) Division, has been transferred as Principal Medical Officer to the Jubbulpore and Jhansi Brigades. Lieutenant-Colonel G. E. Hale, D.S.O., has been posted to the Southern Army in India and appointed to the Fifth (Mhow) Division. Lieutenant-Colonel L. W. Swabey, at present on leave from Aden, has been transferred to the home establishment pending his retirement. Lieutenant-Colonel C. T. Blackwell has been appointed to the Ninth (Secunderabad) Division. Lieutenant-Colonel R. H. Hall, from Colchester, embarks for Bermuda on Nov. 25th, to take up the appointment of Senior Medical Officer recently vacated by Lieutenant-Colonel J. C. Culling on promotion. Lieutenant-Colonel G. G. Adams has been appointed to command the station hospital at Colaba, in succession to Lieutenant-Colonel G. F. Gubbin, whose tour has expired. Major T. B. Beach has embarked for Egypt. An exchange on the roster for foreign service has been approved by the War Office between Major W. W. O. Beveridge, D.S.O., and Major W. G. Beyts. Major H. V. Prynne has arrived home for duty from Gibraltar. Major H. A. Waring, on the expiration of his tour of service in India, has been transferred to the home establishment and has been appointed to the Southern Command. Major G. A. T. Bray has been transferred from the Southern Command to the Eastern Command. Major H. A. L. Howell, on arrival home from Gibraltar, has been appointed Medical Officer in Charge of the Royal Army Clothing Factory at Pimlico. The undermentioned officers, on conclusion of their course of instruction for promotion at the Royal Army Medical College, Grosvenor-road, have been posted as follows: Captain J. P. J. Murphy and Captain A. H. Hayes to Dover; Captain A. McMunn, Captain J. M. H. Conway, Captain W. D. C. Kelly, and Captain A. T. Frost to Dublin; Captain J. McKenzie, Captain M. D. Walker, and Captain H. W. Russell to the London District. Captain G. A. D. Harvey, from Khartoum, has been appointed to the Eastern Command for duty. Captain R. C. Hallowes has arrived home for duty from Egypt. Captain J. H. Gurley has been transferred to the home establishment from Egypt, by exchange. Captain G. A. K. H. Reed has been appointed Specialist in Physical Training to the Aldershot Command. Captain P. H. Henderson has joined at Portsmouth from Ibsley Camp. Captain W. F. Tyndale, C.M.G., has been transferred from Dublin to the Curragh Camp. Captain J. C. G. Carmichael, from Fleetwood, has joined for duty at Chester. Lieutenant D. H. C. MacArthur, from the London District, has embarked for a tour of service in India. Lieutenant T. W. Stallybrass has been transferred from Tidworth Park to Hamilton Camp.

ROYAL ARMY MEDICAL CORPS SCHOOL OF INSTRUCTION.

Major Claude K. Morgan, R.A.M.C., to be an Instructor, vice Major C. C. Fleming, D.S.O., who has vacated that appointment (dated Oct. 29th, 1910).

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel A. L. Duke, administrative medical officer of the North-West Frontier Province, has been appointed under the Foreign Department of the Government of India to be Agency Surgeon of Baluchistan, vice Lieutenant-Colonel J. Sykes, who is proceeding on combined leave in December. Lieutenant-Colonel A. J. Macnab, on return from leave, has been appointed Residency Surgeon, Srinagar, Kashmir, vice Lieutenant-Colonel W. R. Edwards, appointed Administrative Medical Officer, North-West Frontier Province. Lieutenant-Colonel R. H. Castor, Bombay, has received an extension of his leave. Major A. W. R. Cochrane, on completion of a course of special duty at the Central Research Institute, Kasauli, has taken over the duties of Superintendent of the Lunatic Asylums at Agra. Major B. I. Singh, inspector-general of prisons in the Province of Eastern Bengal, has been granted privilege leave for three months. Major E. J. Perry has been selected by the Central Committee for Malarial Fever Investigation for special duty to study the prevalence of malaria in the Jeypur Agency in Northern Madras. Major F. H. Watling has taken over the Medical Charge of the 48th Pioneers at Allahabad. Major J. A. Black, chemical examiner of Bengal, has been selected to officiate as Chemical Examiner of the Punjab Province, vice Lieutenant-Colonel D. Grant. Major S. Hunt has received one year's extension of his leave. The services of Captain J. B. Christian have been placed permanently at the disposal of the Government of Eastern Bengal and Assam. Captain W. W. Jeudwine, district plague medical officer of Gurdaspur, has been granted three months' privilege leave. Captain W. H. Hamilton has been appointed Specialist in Ophthalmology to the Second (Rawal Pindi) Division. Captain S. Whitworth-Jones has received six weeks' extension of his leave home. Captain M. J. Quirke has been mentioned in despatches for "exceptionally good work" done in Somaliland. Captain C. A. Gourlay has been confirmed as Civil Surgeon under the Government of Eastern Bengal and Assam. Captain R. M. Carter, from the Pasteur Institute at Kasauli, has been granted eight months' leave home from India. Captain T. F. Owens has been appointed to officiate as Professor of Chemistry at the Medical College, Calcutta.

TERRITORIAL FORCE.

Royal Army Medical Corps.

2nd South-Western Mounted Brigade Field Ambulance, Royal Army Medical Corps: John Robinson Benson, late Lieutenant, Army Motor Reserve, to be Lieutenant (dated Sept. 16th, 1910).

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—A meeting of this society will be held at 11, Chandos-street, Cavendish-square, London, W., to-day (Friday) at 8 30 P.M., when Sir Rubert Boyce will read a paper (with lantern demonstration) on Yellow Fever in West Africa, and the following papers, which have been approved by the council, will be presented to the society:—(*a*) Autochthonous Oriental Sore in Panama, by Dr. S. T. Darling, chief of the laboratory, Ancon. (*b*) Tropical Diseases in British New Guinea, by Dr. R. Fleming Jones, Samurai.

Correspondence.

"Audi alteram partem."

PLAGUE AMONG EUROPEANS.

To the Editor of THE LANCET.

SIR,—There seems to be a general impression that plague could not possibly become epidemic among Europeans. As this is likely to lead to viewing the spread of plague-infected lower animals over different parts of the country with comparative complacency, I send you the figures which I submitted to the Colonial Office in May of 1901 regarding the plague outbreaks in Cape Town two months before the last case.

Cases of Plague.

Europeans.	Coloured.	Natives.
164	342	133

Cape Town with its suburbs is a comparatively small town. Rats had died a very considerable time before the outbreak, and when the epidemic began there were very few rats to be seen. The close connexion between rat plague and human plague was only accepted in a half-hearted manner until there was a succession of cases in which dead rats were found in the houses, and in one particularly which was badly infected where 105 dead rats were found under the floor and behind the wainscot and panelling. There is also another impression that plague behaves always in the same way, and that because there was a small percentage of pneumonic cases in India and Cape Town, whilst in Sydney until recently there were no pneumonic cases at all, therefore a small percentage of pneumonic cases is a law of the disease. In 1908 on the Gold Coast there were both bubonic and pneumonic cases of plague, and instead of 4 to 8 per cent. of pneumonic cases there was over 50 per cent.

Until England can deal effectively with her influenza epidemics she cannot afford to sit down and not deal vigorously with the plague-infected lower animals in Suffolk in the hopes that nothing may happen. She may be right; on the other hand, she may be wrong. And the wisest course is to treat the rat plague as *the plague*, and bring every available force to bear to get it out of the land.

I am, Sir, yours faithfully,

King's College, Nov. 15th, 1910. W. J. SIMPSON, M.D.

VOLUNTARY AID DETACHMENTS.

To the Editor of THE LANCET.

SIR,—Lieutenant-Colonel A. C. Yate in his communication on the above subject is not fortunate in his comments upon the British Red Cross Society. He says that almost all the members of the voluntary aid detachments raised by the society hold the St. John Ambulance Association certificate. That is true; but he omits to add that until August 8th, 1910, that certificate was, by an existing arrangement now abandoned, the only one available for the purpose. The detachments referred to were for the most part raised before August, 1910, as Lieutenant-Colonel Yate must be aware. Since that date the War Office has recognised a large series of certificates in first aid and among them the certificates of the county councils. It will follow from this that the preponderance of the St. John certificate will be much less conspicuous in the future.

Your correspondent states that the society has undertaken to provide two things—viz., a manual of instruction and an inspecting staff. The manual employed by the society is the "Manual of the Royal Army Medical Corps," which can be obtained for 9*d*. A special manual has been prepared for the society by Mr. Cantlie and is ready for the printers as soon as it has received the sanction of the War Office. The society never undertook to provide an inspecting staff, nor even contemplated such a provision. The organising secretary of the society, Colonel J. Magill, C.B., undertakes to advise as to the formation of detachments in any district and has done a great deal of work under that head.

Your correspondent complains of the "prodigious" number of forms issued by the society. The form dealing with the whole subject under notice is one in number—viz., Form D.

The work of the British Red Cross Society, in raising detachments throughout the country, is proceeding rapidly and with an enthusiasm worthy of so humane and patriotic a movement. For the success of this work the society has to thank many, and above all the medical men of the country, who have so generously given their assistance.

I am, Sir, yours faithfully,

FREDERICK TREVES,
Chairman of the Executive Committee.

Victoria-street, London, S.W., Nov. 10th, 1910.

MEDICAL ETHICS AND MEDICAL ETIQUETTE.

To the Editor of THE LANCET.

SIR,—In a book on the subject of "Medical Etiquette," by Dr. Surbled of Paris, which has just been translated by Dr. W. P. Grant, and for which, by desire of the author, I wrote a brief preface, I find to my great regret that the excellent lectures of my friend Professor Saundby, which he published in 1902 (second edition in 1907), had quite escaped my memory when I referred to the absence of any recent English literature on the subject. Dr. Saundby's book on "Medical Ethics" is an admirable one.

I am, Sir, yours faithfully,

Grosvenor-place, S.W., Nov. 12th, 1910. DYCE DUCKWORTH.

THE FERTILITY OF THE UNFIT.

To the Editor of THE LANCET.

SIR,—Many writers and speakers take an unfavourable, and some an alarmist, view of the prospects of maintaining the vigour of our race. This is illustrated by a discussion at the recent Church Congress. The unfit, we are told, are increasing faster than the fit elements of the population. Mrs. Pinsent of Birmingham is reported to have said that efforts to improve the race by ameliorating the environment are futile. They only serve to perpetuate the evil conditions which they aim at removing. Heredity, it is averred, will always beat environment into a cocked hat. A journalistic placard announces "The Fatal Fertility of the Poor." The birth-rate among mentally defective persons is declared to be high, whilst that of the middle and upper classes is artificially limited. The last statement rests unhappily on a solid basis of statistics and of common experience, and I do not deal with it here.

But statistics on the fertility of the mentally and physically defective portion of the population are not easy to obtain. Those who have watched the working of natural laws have reason for believing that Nature is always trying to improve the breed and to eliminate defects. From a study of pedigrees and long observation of families I am inclined to agree with this view. Such improvement is effected partly by mixing with healthier stocks, partly by sterilising those which are defective below a certain standard. The sterilisation must be looked for, not in one generation only, but in two or three; that is to say, that if the pedigree of a defective person is traced, then either by combining with better strains the succession is maintained and the defect gradually eliminated, or, if the defect is too great or the new stocks are also defective, the progeny dies out in one, two, or three generations. In the words of Dr. F. W. Mott, dealing with the inheritance of a tendency to insanity, "As a rule, there is either a regression to the normal or the stock dies out."

Thus the unfit disappear, and the fit prevail. It will be said these are only general impressions. Yet are they not consistent with the experience of breeders of animals, with the conditions of the struggle for existence, and with a tendency to be traced all through vital phenomena for the survival of the fittest? But it is said that we have altered the conditions in which Nature is working by preserving alive many unfit who would have died, and by so caring for their welfare as to enable them to increase in the community, and that in this manner the efforts of philanthropy and the kindness of modern civilising agencies in reality tend to the deterioration of the race. This is a serious statement, and can only be fully met by facts and statistics which are not as yet available, but to some of which I will allude presently. In the meantime, two considerations may be advanced. In the first place, the sum total of modern efforts to improve the welfare of all classes of the community, by which the unfit are made less unfit and the fit made fitter, should surely tend to help and not to hinder the progress of the race as a whole. Secondly, to enter into more detail, with regard to those who were born

so physically or mentally defective that they would have died in childhood but for the philanthropic care received, a large number of these will remain below the standard of ability to propagate their kind, and others will be so far raised by the care received as to become sound members of the race. The intermediate class, consisting of those unfit who have been enabled by special aid to live and to become parents, will be subject to the conditions already pointed out; there will be "a regression to the normal or the stock dies out" in a very few generations. These are again general impressions and appeals to probability, but so are the statements which they controvert; we need facts. Well, but we are informed that the birth-rate of the mentally defective is high, and the Report of the Royal Commission on the Feeble-minded is freely referred to in support of this statement. I turn to this Report and find, indeed, mention of various instances of weak-minded women who had large families of children. But when the Commissioners come to sum up the matter judicially they state (vol. viii., p. 198), "With one or two exceptions, sifted and precise statements on the subject are wanting." Again. "It is, we feel, a matter of serious regret that more scientific evidence on the birth- and death-rates of the mentally defective is not forthcoming." It is plain, therefore, that the Report furnishes no sufficient ground for the assertion of a higher birth-rate. Dr. Mott's recent Huxley Lecture[1] on the Hereditary Aspects of Nervous and Mental Diseases touches little on the question of fertility. He states, however: "In a number of pedigrees obtained from an imbecile asylum ..... I observe (though the numbers are not sufficient yet to give any precise data) that the families are prolific ..... but there is relatively a larger number of deaths from various diseases, especially tuberculosis." Such pedigrees, traced upwards from offspring, will naturally deal more with the fertile than with the sterile members of the unfit class.

It would help much to the fuller understanding of this question if vital statistics of the feeble-minded and other varieties of the unfit could be compiled upon a broader basis. They must, however, take note of several generations. It would not be enough to show that feeble-minded women had as large or larger families than sound women, for the vitality and power of procreation possessed by these children must be taken into the account. It will probably be found that many die in infancy and childhood. Meantime, until proof is shown of the exceptional power of the unfit to perpetuate their kind I submit that the opposite view holds the field, and that the influence, both of natural laws and of philanthropic effort, is to raise the stock and not to lower it.

I am, Sir, yours faithfully,

Wimpole-street, W. R. HINGSTON FOX.

CONTINUOUS PROCTOCLYSIS.

To the Editor of THE LANCET.

SIR,—The chief difficulty in the management of continuous proctoclysis lies in the maintenance of the temperature of the saline solution at a uniform degree. The possessor of a "thermos" flask is provided with a simple means of overcoming this difficulty. All the additional apparatus necessary are a U-shaped piece of glass tubing with one arm long enough to reach to the bottom of the flask; three or four feet of rubber tubing attached by one end to the glass tube and connected with the catheter by the other; and, lastly, some means of limiting the flow, such as a metal clip on the rubber tube or the introduction of a tap, such as that supplied with the Rotunda douche. The flask is filled with saline solution at a temperature a few degrees above that at which it is desired to administer the injection, and suspended two or three feet above the patient's bed. The fluid is then run off by syphonage and the flow regulated by the tap or clip. The temperature of the solution will remain at practically the same level, while the bottle slowly empties. At the rate usually advised—viz., one drop per second—only 7½ ounces are used per hour, so that a pint thermos flask will contain sufficient solution to last for two hours.

I am, Sir, yours faithfully,

HENRY W. P. YOUNG, M.D., B.C. Can'ab.

Norbury, S.W., Nov. 7th, 1910.

[1] THE LANCET, Oct. 8th, 1910, p. 1057.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

University of Birmingham: The Walter Myers Travelling Scholarship.

THE Council of the University of Birmingham at its last meeting elected Mr. Cranston Walker, M.B., Ch.B., B.Sc. Birm., to the Walter Myers Travelling Studentship, and Dr. Walker has proceeded to the University of Freiburg in Baden to carry out a research under the direction of Professor L. Aschoff. This scholarship, which is becoming one of the most important in the medical school, is of the value of £150 per annum, and was founded by Mr. George Myers of Edgbaston for the promotion of original research, and in memory of his only son, Dr. Walter Myers, a former student of Mason University College, who died from yellow fever contracted in Brazil while investigating the cause of the disease on behalf of the Liverpool School of Tropical Medicine. The Council of the University also approved the election of Mr. John Dale, M.B., Ch.B., B.Sc. (Public Health) Birm., for a further year, he having held the scholarship for the year 1909–10 and having proved himself a student of exceptional merit. Dr. Dale is returning to Hamburg to continue his research work in public health under the direction of Professor Dunbar.

Research Defence Society.

The first public meeting of this society was held on Nov. 1st in the Midland Institute. The President, Professor Leith, presided over a large audience, and Professor P. F. Frankland, F.R.S., delivered an eloquent lecture on the Life of Pasteur. A vote of thanks to the lecturer was proposed by Canon Carnegie of the Cathedral Church and seconded by Mr. Cary Gilson, M.A., the headmaster of King Edward VI.'s Grammar School. It is intended to hold three or four such public lectures each year.

Hospital Saturday Fund.

The entire collection for the present year up to date amounts to £20,194, which is £505 more than last year. The usual grant of £10,000 for the twentieth year in succession has been made to the various hospitals of the city. Since the inception of the Fund the following amounts have been handed to the hospitals: The General Hospital (including the Jaffray Hospital), £104,064; Queen's Hospital, £57,780; General Dispensary, £31,101; Children's Hospital, £23,952; Birmingham and Midland Eye Hospital, £17,741; and Women's Hospital, £12,142. Smaller amounts have been received by other hospitals.

Nov. 16th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: Conferring of Honorary Degrees.

THE University of Liverpool on Nov. 14th, at the hands of the Chancellor (the Earl of Derby), conferred the honorary degree of LL.D. on the Earl of Rosebery, the Earl of Cromer, Viscount Morley of Blackburn, Sir Archibald Geikie, and the Right Hon. John Burns. The scene was a brilliant and animated one, to which the undergraduates contributed a long series of topical songs. Preceding the ceremony the Lord Mayor entertained those named above and other distinguished guests at luncheon in the town-hall, where speeches were delivered. At noon Lord Rosebery unveiled a commemorative tablet to be affixed to the Students' Union, and spoke on "The True Functions of a University Union."

Liverpool Select Vestry: Complimentary Dinner to Mr. William Alexander.

Mr. William Alexander, who has recently resigned the office of visiting surgeon to the Liverpool workhouse hospital after 38 years' service, was entertained at dinner by the members of the select vestry, at the Adelphi Hotel, on Nov. 2nd. Mr. T. D. Laurence, the "father" of the select vestry, proposed the health of Mr. Alexander in a flattering speech, and presented him with an illuminated address. Mr. Alexander, in responding to the toast, thanked his hosts for the address and for the kind manner in which the toast was received by those present. He also thanked the nurses of

the hospital, and wished every success to his successor, Mr. Arthur J. Evans.

Tuberculosis in Milk.

A farmer of Moss Wood farm, Stretton, was fined £1 1s. and £10 costs at the Daresbury petty sessions last week for allowing a cow suffering from tuberculosis of the udder to remain in a shippon along with other cows. The deputy town clerk of Warrington stated that in June last a sample of milk was purchased from a shop in Warrington. When analysed by Professor S. Delépine it was found to contain tubercle bacilli. The medical officer of health visited the defendant's farm and saw a cow which did not appear satisfactory. It was decided to take a sample of the milk, and this was found to contain tubercle bacilli. The defendant was asked to isolate the cow from the rest of the dairy stock, and not to sell any milk from the cow for human consumption. When another visit was paid by one of the health officials to the farm he found the cow in the shippon along with other cows. When this was brought to the defendant's notice he replied that he thought the corporation were not troubling about the cow again, and he put her back in the shippon a fortnight before. The defence submitted was that the defendant had committed a technical offence, which really meant that he had failed to isolate the cow. During the whole of the time from the moment isolation was mentioned the milk from the cow had never been sent out to customers.

Nov. 15th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Urgent Plague Precautions.

IN view of the serious occurrence of plague in England the Local Government Board of Scotland has issued an order to all local authorities stiffening the regulations with respect to plague issued in 1902.

Edinburgh School Board and the Medical Inspection of School Children.

An account has been published of the scheme of the Edinburgh school board for the medical inspection of school children. The medical staff consists of the head of the department, who is a medical man, two medical assistants, one of whom is a medical woman, and two nurses. Under the scheme the staff carries out regular visitation of the schools, examination of the pupils, and supervision of cases in which the parents are suspected of neglect. The board is proceeding under two statutes—the Education (Scotland) Act, 1908, and the Children Act, 1908. Three periods in the life of the child are taken as the basis of the medical inspection—the time of enrolment, i.e., at the "infant" school stage, at the age of 9, and at the age of 13, while in addition to the routine examination and inspection special cases are dealt with as they are reported by the teachers. The services of the teachers are utilised in measuring and weighing pupils, and in securing and tabulating data for the health returns. The duties of a headmaster especially in this respect are onerous. No powers are given to the board to provide treatment, the duties of the medical officers being to examine the children, report defects to parents, and bring to the notice of the board children suffering from neglect or cruelty at home. As regards neglected children the board intends to make full use of the powers conferred on it. A definite procedure has been outlined in a circular lately issued to headmasters from the office of the board. This is as follows:—

1. *Notice to the board* to be sent by the headmaster, school medical officer, or attendance officer according to the character of the case.

2. *Warning notice to the parent* to be sent out by the board on receipt of a notice as above from headmaster, school doctor, or attendance officer.

3. *Action by the board.*—If after the "warning notice" improvement in the condition of the child is not effected the parent may be summoned to appear before the board. If on the appearance of the parent an explanation is not forthcoming or proves unsatisfactory, the board may report the case to the Procurator Fiscal of the Sheriff Court in order that proceedings may be instituted against the offending parent under Section 12 (1) (b) of the Children Act, 1908, or Section (6) 2 of the Education (Scotland) Act, 1908.

It is stated that already there is a marked improvement in the condition of children, concerning whom reports have been made to the parents, and that considering the home conditions the efforts made to keep the children clean and wholesome in many cases are surprising. The board is now making arrangements to provide food for the underfed children in the schools, and has approved a plan for creating local or district care committees, which, working under a central committee, will supervise the distribution of food. It is hoped that these local care committees will prove repositories and foci of accurate knowledge with regard to the worst cases in each district, and that the scheme as a whole will lead to a very appreciable difference in the hard lives of many children.

Edinburgh Sanitary Society.

At a meeting of the Edinburgh Sanitary Society on Nov. 10th an address was given by Dr. R. W. Philip on Rest and Movement in Tuberculosis. Dr. Philip first spoke on aerotherapy, which was now one of the widely accepted facts of modern therapeutics. His conviction was, that were the vitalising properties of open air truly realised the larger part of disease would cease to be. Granted that a patient was to be treated on open-air principles, was he to be kept at rest or was he to be allowed movement, and if so, to what extent? The older school of opinion favoured almost complete rest, but in his opinion while rest was helpful, and at certain times essential, prolonged treatment by rest gave unsatisfactory results. The patients might seem to improve, might put on weight enormously, but the increase was usually mere fat, while the skin remained pallid and toneless, and the muscles soft and flabby. The practice of treatment by continued rest proceeded from a faulty conception of the disease. The lesion in the lung was a small part of the illness. The gradual descent downwards—or "decline"—was the expression of a systemic or constitutional intoxication. The toxins produced by the tubercle bacillus appeared especially to affect the neuro-muscular apparatus. The toxin was especially a muscle poison leading to muscular dystrophy. This dystrophy not only affected the muscles of the trunk and extremities but likewise the muscles of the heart, blood-vessels, and other viscera. With such a condition of the muscles the indication was mainly rest, but when the amount of toxin was less the dystrophic muscles tended to recover physiologically if treated by natural movement. Dr. Philip outlined the scheme of physical treatment practised in the Royal Victoria Hospital, which was found to be all that was needed for the majority of patients.

Resignation of the Superintendent of Edinburgh Royal Infirmary.

Colonel W. P. Warburton, C.S.I., superintendent of the Royal Infirmary, Edinburgh, has intimated to the managers of that institution his intention of resigning his post as superintendent. Colonel Warburton entered the Indian Medical Service in 1866 and retired in 1899. During his career in India he held the post of medical officer to the Maharajah of Kaipurthala, and was appointed sanitary commissioner in 1894. Subsequently he held the posts of Inspector-General of Civil Hospitals in the North-West Provinces and Oudh, and of honorary surgeon to the Viceroy of India.

Glasgow Medical Faculty.

A conversazione was held recently by the Royal Faculty of Physicians and Surgeons of Glasgow in the Faculty Hall, St. Vincent-street. About 700 ladies and gentlemen were present, and the gathering was representative of the medical profession in Glasgow and the West of Scotland. A notable feature of the proceedings was the presentation of a mace to the Faculty by Dr. J. Walker Downie. The President, in welcoming the guests, stated that the Faculty had from the very beginning of its career shown a great interest in the medical profession of Glasgow. For the first 250 years of its existence it had practically the sole management of the profession in the city and in a considerable number of neighbouring towns. In these later days they had done a great deal for the profession in a variety of ways. During the past year the late King Edward signified his sovereign pleasure that they should thereafter be called the Royal Faculty of Physicians and Surgeons. They had always been a Royal Faculty in reality, because they were founded over 300 years ago by King James VI. of Scotland, but they never used the title Royal. Whether they were entitled to use it or not he did not know, but at any rate they had now received the right for all time coming to be known as the Royal Faculty.

New Hospital for Skye.

To perpetuate the memory of Dr. MacKinnon of Strath a scheme has been formulated for the building and equipment of a hospital at Broadford, Skye. An ideal site has been secured and plans have been prepared and approved by the local committee. The estimated cost of the building is about £1000. Already a considerable number of subscriptions have been received, the amount in the treasurer's hands being a little over £1600. It has been decided, however, not to commence building operations until a sufficient sum is raised to endow the hospital, and a special appeal for the requisite funds has been issued. The proposed institution will supply a want which has been felt in the east end of the island, as under existing conditions patients have to be conveyed long distances before they can get hospital treatment.

Isolation Hospital for Dumfries and Maxwelltown.

Dr. W. Leslie Mackenzie, of the Local Government Board, performed last week the opening ceremony of the new combination hospital for Dumfries and Maxwelltown for the treatment of infectious diseases at a cost of fully £7000. In declaring the hospital open Dr. Mackenzie spoke in appreciative terms of the vast amount of good work done by voluntary institutions in dealing with infectious disease. Dumfries followed several other towns in providing isolation hospitals for infectious disease, and as these diseases were spread over all classes of the community, it was essentially the duty of the community as a whole to deal with them. He went on to emphasise the need of dealing in a strenuous manner with phthisis, and expressed great satisfaction that, complying with the recommendation of the Local Government Board, local authorities representing over 50 per cent. of the population of Scotland, had already adopted compulsory notification of phthisis.

Dundee Royal Infirmary Staff and Time Gun.

The Dundee Royal Infirmary staff have petitioned the works committee of the Dundee town council on the question of the nearness of the time-gun to the institution. They point out that its firing is injurious to the patients and ask that it should be removed to some other place. The committee, after discussion, agreed that the city engineer should report on the subject at the next meeting and that meantime a less charge of gunpowder should be used.

Nov. 15th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Action by the Local Government Board against a District Council.

LAST week, in the King's Bench Division, before the Lord Chief Baron, Mr. Justice Gibson, and Mr. Justice Boyd, the Local Government Board made application that a conditional order of *mandamus* issued a few months ago against the Kilmallock rural district council should be made absolute. The order directed the district council to appoint a veterinary surgeon as inspector of dairies and cowsheds to carry out the provisions of a sanitary Order of the Local Government Board. In April, 1908, the council had considered the Order, and refused to take any action, marking the Order "read." The Local Government Board informed the council that the Order was of general application. Dr. Browne, Local Government Board medical inspector, visited the union and reported that in the interest of the public health and the creameries of the Kilmallock district the provisions of the Order should be enforced. A long correspondence ensued and the council remained obdurate. Eventually legal proceedings were taken, as stated above, by the Local Government Board. The court unanimously refused the application, with costs against the Local Government Board, the Order being *ultra vires*. The decision is important as the Order sought to be enforced against the Kilmallock council was of general application to the country. Many other councils have also refused to obey, and others have already made these appointments, which they are now likely to cancel on short notice. The decision, in fact, is likely to render nugatory the Dairies and Cowsheds Order of 1908.

A General Anæsthetics Bill.

In view of the fact that the General Medical Council at its present session is to consider a draft of an Anæsthetics Bill sent down from the Privy Council, the President of the Royal Academy of Medicine in Ireland (Sir Charles Ball) recommended a special meeting of the Academy to consider the entire subject. As dentists are much interested in the question, the members of the Irish Branch of the British Dental Association were invited to be present and to take part in the discussion. The dentists showed more interest than the Fellows of the Academy, some dozen and a half only of the latter being present and at least twice as many dentists. After discussion the following resolutions were adopted:—

1. That it is desirable in the public interest that the administration of general anæsthetics to render persons unconscious during any medical, surgical, obstetrical, or dental operation or procedure, should be restricted by law to registered medical practitioners, with the exception of nitrous oxide gas and such other anæsthetics as may from time to time be sanctioned by the Privy Council, which may be administered by a registered dentist.
2. That provision should be made for the practical instruction in anæsthetics of medical and dental students.
3. That the specification of the anæsthetic substances or drugs which may thus be employed by registered dental practitioners during dental operations or procedures should be made in a schedule to the proposed Act of Parliament, power being reserved to the Privy Council, on the recommendation of the General Medical Council, as the authority charged with the publication of the British Pharmacopœia, to add to or vary the specified list from time to time as occasion arises.
4. That the administration of local anæsthetics for producing insensibility to pain during any surgical or dental operation or procedure by the introduction beneath the skin or mucous membrane of any fluid or other substance by means of a hypodermic needle or in any other way, should be restricted by law to registered medical practitioners, to registered dentists, or to persons acting under the immediate supervision of a registered medical practitioner or a registered dentist.

Poor-law Reform.

A conference on Poor-law reform will be held in the Mansion House, Dublin, on Wednesday, Dec. 7th. Invitations have been addressed to the clerk of each union in Ireland in the hope that one or more members of each board of guardians will attend. The object of the conference is to elicit a definite expression of opinion from guardians in favour of some one of the methods of reform which have been proposed in the report of the Viceregal and Royal Commissions. The conference has been organised by the Philanthropic Reform Association and the Irish Workhouse Association.

Conferring of Degrees in University College, Galway

Following on the conferrings of degrees in Dublin and Cork a meeting of the Senate of the National University was held last week, in University College, Galway, for the purpose of conferring degrees. It was the first time that such a ceremonial had taken place in Galway. It is gratifying to know that the scenes of disorder which took place at Dublin and Cork were not repeated in Galway.

The Ulster Medical Society.

The session 1910–11 opened on Nov. 10th. A very hearty vote of thanks, moved by Dr. H. O'Neill and seconded by Dr. A. G. Robb, having been accorded Dr. J. J. Austin, the retiring President, the incoming President (Sir Peter O'Connell) proceeded to give his introductory address on "The Present Position of the Poor-law Service in Ireland as bearing specially on the Medical Profession," and advocated a State medical service. The President invited a discussion, in which the following gentlemen joined: Dr. Robb (who said that 95 per cent. of the practitioners of Ulster and 90 per cent. of those in Connaught had signed the paper in favour of a State medical service, and he hoped that Leinster and Munster would go equally united for it) Dr. C. Kevin, Mr. R. Hall, Sir John Byers, Dr. O'Neill, Mr. W. Burns, Dr. J. S. Darling, Professor T. Sinclair, and Dr. J. Walton Browne. There was a marked unity of opinion in favour of a State medical service, which it was recognised would be best for the country, would raise the status of the medical profession in the Poor-law service, and would improve the public health of the country. On the motion of Dr. John Campbell, seconded by Dr. W. Calwell, a hearty vote of thanks was passed to the President for his address.

Women's National Health Association of Ireland.

Lady Aberdeen, founder and president of the Women's National Health Association of Ireland, spoke at the annual meeting of the Belfast branch on Nov. 8th and at Ballymena on the next day at the yearly assemblage of the Mid-Antrim branch. Very encouraging reports were presented at both meetings. In Belfast (the Lord Mayor presiding) the Moderator of the General Assembly, the Catholic and the Protestant Bishops, Dr. Marion Andrews, and Mr. H. W. Bailie

took part, while at Ballymena Mr. R. Currie and Dr. W. R. Davison addressed the meeting.

Belfast Asylum.

The report of the Inspectors of Lunatics (Dr. E. M. Courtenay and Mr. I. M. Considine) was read on Nov. 14th at a meeting of the asylum committee of the city council of Belfast. They write in the highest terms of the Purdysburn asylum and hope that no time will be lost in disposing of the old institution in Grosvenor-road, Belfast, and transferring the inmates to new quarters at Purdysburn, where they will enjoy all the advantages of country life and pure air, together with the advantage afforded by beautiful buildings and good surroundings. 1245 people are now on the books of the asylum—583 males and 662 females—792 in the old asylum at Belfast, 339 at Purdysburn, and 54 in Ballymena workhouse. The medical officers are all praised for their work and their care of the inmates.

A Case of Cerebro-spinal Meningitis in Belfast.

An inquest was held on Nov. 9th at the Recorder's Court, Townhall-street, to inquire into the death of a child aged 6 years. Professor W. St. Clair Symmers, who made a post-mortem examination, stated that death was due to cerebro-spinal meningitis.

Nov. 15th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Trephining in Simple Fractures of the Skull.

AT a meeting of the Society of Military Medicine held on Nov. 8th M. R. Picqué recommended lumbar puncture as one of the first steps in the treatment of simple fractures of the skull. He said that it was indispensable as a means of diagnosis, but a further operation was required if the general symptoms persisted after the puncture, and the surgeon should trephine as soon as the least local sign indicated the precise locality. M. Moty said that trephining was plainly indicated when there was severe intracranial pain which resisted ordinary treatment; opening and draining the arachnoid cavity distinctly relieved the pain. M. Jacob, M. Sieur, and M. Rouvilois said that lumbar puncture was sufficient in a great number of cases; they thought that systematic trephining was not necessary when the patient did not present any sign of cerebral localisation or compression and when there were only symptoms of excitement; lumbar puncture gave the patient the same advantages as trephining. In support of their opinions they quoted cases in which patients suffering from fracture of the base of the skull had recovered without any operation other than lumbar puncture.

The Floods.

The river Seine is once more in flood and rising in so alarming a manner that the inhabitants of the *banlieue* are hastily removing their furniture and leaving their homes. In Paris the water is making its way into the cellars of the houses along the quays and the steamboats have had to stop running. At Javel and at Auteuil the water washes over the wharves. The cellars of the wharves on the Quai d'Austerlitz are being emptied, ventilators on the ground-level are being closed, and it is feared that the Hôpital Boucicaut may have to be evacuated. The whole of the *banlieue* in the neighbourhood of the river is flooded and other parts are threatened. On all sides the officials of the Department of Public Works are taking measures of protection against the rising water and are endeavouring to prevent a breakdown of the supply of electric current such as the floods caused last year, with the result that tramway traffic was stopped in a great many parts of Paris.

New Organic Preparations of Arsenic.

At a meeting of the Academy of Medicine held on Nov. 8th M. Armand Gautier said that although he had not spoken on the subject of organic arsenical compounds since the year 1901 he had, nevertheless, been the first to obtain such organic preparations of arsenic as the cacodylates, the methylarsenates, and arrhenal, in which toxicity was reduced to a minimum, while their therapeutic value in certain diseases was truly remarkable. He showed that in syphilis a combination of mercury with arsenical preparations gave excellent results. Since the year 1895 the cacodylates have been employed in the Hôpital Saint-Louis, in the wards of which Dr. Danlos had charge, injections of them being given in doses varying from 0·60 gramme to 0·80 gramme per day; they have also been prescribed in the Hôtel-Dieu and the Hôpital Boucicaut.

Provincial Sanitary Conference.

The first Provincial Sanitary Conference organised by the Society of Public Medicine and Sanitary Engineering was held recently at the Pasteur Institute. Dr. Roux, who presided, said that this society last year played an important part in connexion with public health legislation, and had now brought together the superintendents of the health offices, the departmental inspectors of health, and various administrative authorities for the purpose of considering the applications of the new statute. M. Herriot, mayor of Lyons, then explained his views on the subject of modern hospitals, with especial reference to the suburban hospital which was about to be built at Lyons. It would occupy a site of 156,000 square metres and would contain 1200 beds, of which 150 would be reserved for infectious cases. M. Herriot has adopted the system of separate compartments, such as were in use at the Pasteur Institute. The hospital would naturally consist of detached pavilions, of which there were 18, all communicating by means of underground passages. The laboratories would be in the basement, the ground floor and the first floor would be occupied by patients, and the upper floors would be used for the accommodation of the officials. M. Lemoine, principal medical officer at Val de Grâce, then presented a report on the etiology and prophylaxis of typhoid fever, and a discussion followed in which M. Guillemin, M. Chantemesse, M. Zipfel, M. Panel, M. Granjux, M. Julien, M. Calmette, M. Gautrez, M. Courmont, and M. Rossi took part.

The Use of Radium in Dermatology and Rhinology.

At a meeting of the Société de Médecine de Paris, held on Nov. 11th, M. Lagarde and M. Masotti presented a communication on the Use of Radium in Dermatology and Rhinology. They said that in a number of cases patients suffering from conditions included under these headings might derive benefit from the employment of radium. This substance was already in daily use for the treatment of nævi, cancroid growths, lupus of the nose, cancers, leucoplasia, and lichen of the oro-pharynx. It seemed probable, moreover, that other tumours of the nasal fossæ (sarcomata, epitheliomata, and tuberculous growths) might benefit from the same applications, and that certain zones of the nasal mucous membrane, localities liable to polypus and varix, might be favourably influenced. Some other diseases such as maxillary sinusitis, hypertrophied tonsils, and laryngitis might also be successfully treated by radiferous substances combined with insoluble salts. Lantern pictures of patients who had recovered under this treatment were shown. In the subsequent discussion M. Druelle said that he recognised the features of one of the patients who had been shown on the screen as recovered, and he believed that this person had recently died from epithelioma in the Hôpital Saint-Louis. M. Levassort said that when photographs of patients were publicly exhibited care should be taken to make individual recognition impossible, but recognition in this case may have corrected a blunder.

A Coöperative Restaurant for Female Students.

A General Association of Female Students was formed in Paris last June, and a coöperative restaurant for the use of the members has now been established at No. 55, Rue Saint-Jacques, where a repast consisting of soup, meat, sweets or dessert, bread, and wine is provided for 1 franc; for 5 o'clock tea the charge is 25 centimes. A number of gentlemen occupying official positions attended the inaugural ceremony when the restaurant was opened on Nov. 6th, the company including M. Liard, vice-rector of the Academy; M. Lavisse, director of the École Normale Supérieure; the Presidents of the Municipal Council and of the General Council; and Professor Landouzy, dean of the Faculty of Medicine.

Nov. 14th.

Mrs. Amy Mary Macdonald, M.D., widow of the late Dr. Donald Macdonald of Stornoway, and eldest daughter of Mr. J. Galloway Weir, M.P., died at her residence, "Lyndale," Harlesden, N.W., on Monday, after a long and painful illness.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Tabes Dorsalis by Mercury.

IN a paper read before the Vienna Medical Society, Professor Redlich discussed the results obtained by him in the treatment of tabes dorsalis with mercurial preparations. His statistics were based on observations made on 308 private patients, of whom 282 were men and 26 were women—a proportion of 11 to 1. Of these patients, 44 per cent. had presented evident symptoms of syphilis, and another 26 per cent. acknowledged having had an "ulcer" without being aware of secondary manifestations, so that 70 per cent. of them were to be regarded as certainly suffering from specific infection. Wassermann's reaction was also positive in 70 per cent. of the patients examined; 19 persons with no history of syphilis gave a positive Wassermann reaction. Amongst the 308 cases of tabes only 19 per cent. had been subjected to regular antisyphilitic treatment commencing immediately after infection (whatever effect this treatment may have had it at least did not prevent the occurrence of tabes); 41 per cent. had had only an irregular treatment and 40 per cent. had had no antisyphilitic treatment at all. Professor Redlich subjected all cases to a mild mercurial course, combined with hydrotherapeutic, thermic, and gymnastic procedures. In no case did the mercury produce any unfavourable effect; several patients were distinctly benefited by it, whilst in others it had no perceptible action whatever. It was administered in moderate doses, mostly by inunction but sometimes by injections. The disease remained in a stationary condition in about 10 per cent. of the cases; in acute exacerbations mercury was decidedly indicated. A combination of tabes with progressive paralysis was not influenced at all; *crises gastriques* and atrophy of the optic nerve were very refractory. Professor Redlich thought that only cases in an early stage, and acute exacerbations of existing disease, were suitable for this mercurial treatment, and that optimistic expectations were not warranted. It could not be said that the effect of Ehrlich's new remedy, "606," was beneficial under such conditions, and it remained to be seen whether patients treated with this substance would escape subsequent tabes or paralysis.

A Debated Question of Professional Secrecy.

The death of a celebrated actor in Vienna, who also held a high position in society, has caused in medical circles renewed discussion as to the maintenance of secrecy in the relations between a patient and his medical advisers. The actor, who was an important personage in our principal theatre, was suffering from advanced internal cancer. The regularly appointed physician to the theatre, a man of high professional standing, was the first to discover the nature of the disease, and the question then arose whether or not he ought to inform his chief (the director of the theatre) as to the state of the actor's health. One prominent feature of the case was that the actor was on the point of renewing a contract with the theatre, and this would have had the effect that the performances would have been arranged on the understanding that he would appear in them. In the result the medical man decided to inform the director, but in order to avoid alarming the patient the contract was made just as if he had been in good health. Meanwhile an operation had to be performed, and when the facts became known to the public, which here is very sensitive in all matters pertaining to theatres and music, the attitude of the medical man was severely criticised from opposite points of view, some blaming him for making any disclosure at all and others for having withheld what ought to have been made known. Needless to say, the medical man soon pointed out that the public was not entitled to any information which he might possess regarding the actor's personal health; and he also maintained that with respect to the director of the theatre, he was in a position comparable to that of a medical man to an insurance company or other corporation, in being obliged to disclose to his employer the diseases from which patients suffered. In medical circles he is exonerated from blame, but the public seem to be unwilling to accept his explanations.

An Austrian Cancer Committee.

The results obtained in other countries have led to the formation in Austria of a committee with a view of combating cancer. The original members of this committee are Professor von Eiselsberg, Professor Fränkel, Professor Hochenegg, Professor Schauta, Professor Paltauf, and Professor Weichselbaum, these being the leading surgeons, gynæcologists, and pathologists respectively of the University of Vienna. As soon as the preliminary work of the committee is finished a Cancer Society will be constituted. This society will draw the attention of the general public to the necessity of seeking medical advice at the very earliest appearance of suspicious symptoms, but its principal object will naturally be the prosecution of scientific research. Lectures and discussions dealing with this subject, periodical publication of the work accomplished by its members, and grants for the promotion of original investigation will be the leading features of the programme of the Cancer Society. Some time ago, when Professor Chrobak was at the head of the Vienna Medical Society, similar action was taken, when a leaflet entitled "Principiis Obsta" ("At the Commencement") was distributed amongst the female patients in the Vienna hospitals in order to draw their attention to such symptoms as required careful observation.

The New Radium Institute.

The new Radium Institute, the largest of its kind, was recently opened with much ceremonial display in presence of His Imperial Highness the Archduke Reiner, the Protector of the Academy of Sciences. The institute has been established by an anonymous gift to the Academy, the only stipulation being that the institute must be erected before the end of the year 1910. The entire outfit has also been provided by private liberality. The institute will be devoted to research only, and will not be used for teaching purposes. It has two distinct departments, intended respectively for physical and for chemical research. The latter, which will, for instance, undertake the determination of atomic weights, is situated in the basement and first floor of the building. On the first floor there is also the apparatus for the examination of waters and minerals for radio-activity, as well as for similar investigations in regard to air collected at different places. The institute possesses a total quantity of 3 grammes of radium bromide, valued at 1,000,000 kronen, or £45,000, presented by the Academy of Sciences of Austria. The investigation of the atomic weight of radium will be entrusted to Dr. Hönigschmidt; researches will also be carried on for the standardisation of radio-activity by determining an international unit for this purpose. The Congress for Radiology held in Brussels elected an international committee for the purpose of deciding on such a unit, the Austrian representatives being Professor Stephen Meyer and Professor Schweidler. The institute has no lecture-hall, being entirely restricted to research, and medical treatment will not be within the scope of its work.

Nov. 14th.

ITALY.

(FROM OUR OWN CORRESPONDENT.)

The Public Health.

THE invalid and the valetudinarian—a "constant quantity," if not an increasing one, in the annual contingent of foreign travel—need be under no misgiving in setting out for this or that Italian health resort in quest of warm, salubrious air and immunity from "epidemics," prevailing or sporadic. Alarmist reports notwithstanding—reports, as I have authority for stating, industriously diffused from transalpine quarters, where "warnings" against a sojourn in Italy are even printed on the *menu* of many a *table d'hôte*—the cities and seaboards of the Italian mainland and islands are as safe as ever they were for the foreign visitor. Cholera is practically *une quantité négligéable*, as the following figures, officially checked and countersigned, will suffice to prove. From midnight to midnight of one day last week there was in the province of Girgenti (Sicily) but one case and no death; in the province of Palermo one case and no death; in the province of Lecce two cases and no death; in the province of Caserta (Neapolitan) two new cases and one death of a patient previously notified; in the province of Rome one case at Tarrácina (Pomptine Marshes) and no death; while of the previously notified cases bacteriological examination has given positive results in one

case at Brindisi and two at Cancello Arnone and a negative result in one at Brindisi. In fact, but for the undoubted presence of the disease in Southern Italy these last few weeks the cases now reported would have passed unnoticed, except by the State experts; certainly they would have caused no alarm in the resident, and acted as no deterrent to the foreigner. Another point may be indicated as distinctly reassuring. In those cases where the disease has been bacteriologically ascertained, recoveries have been far more frequent than deaths, clearly proving that medical treatment, immensely more efficient than in past visitations, has robbed the "Asiatic intruder" of some portion of his terrors. All the same, the reports above referred to are still active and effective enough to deter the travelling world from its accustomed resort to Italy this autumn, and hotel-keepers throughout the kingdom may well be downcast. I know of several well-appointed establishments, justly held in high repute by the English-speaking visitor, which for weeks past have been able to boast of but one guest—a "Robinson Crusoe" vainly looking out for a "Man Friday."

The Weather.

Rarely has the Storm King run such riot throughout the Italian mainland and islands as during the last ten days, and only now are we beginning to realise the width and depth of the damage and misery he has left behind. On the Neapolitan Riviera bodies swept out to sea from the island of Ischia by the recent "nubifragio" are being fished up from time to time, leaving many others unaccounted for, except on the hypothesis that they have been, as was found after the Siculo-Calabrian cataclysm of Dec. 28th, 1908, devoured by sharks. What with earthquakes, cyclones, cloudbursts, and inundations, southern and even central Italy has had experience enough, telluric and atmospheric, to make the year now closing an "annus mirabilis." Decade by decade such visitations become frequent enough to warrant a claim to "periodicity," and to justify the French nature-student, in these latitudes especially, when he cried, "Ah! Monsieur, la terre est si nerveuse!" Meteorology, nowhere more assiduously than at the Italian observatories, is working at the causes of these perturbations, coincident with, if not consequent upon, "liberties taken with the earth's crust," in tree-felling and mining particularly. Grateful, indeed, will the world be if, in the French phrase, "la pathologie tellurique" rewards its students with knowledge enough to restore health and stability to the soil and equilibrium to the atmosphere—doubly grateful in the near future when aerial navigation tends to supplement, if not to replace, the terrestrial locomotion now hardly capable of further development.

Alpine Misadventure.

For the year ending on Oct. 31st there were 90 deaths incurred by mountaineers, expert or amateur, on the Swiss and Italian ranges, and 80 cases of injury, of which four are expected to end, if they have not already ended, fatally. The causes were the traditional ones—to wit, starting without a guide, avalanches, detachment of rocks, snapping asunder of ropes, sudden mists, and heart failure while "clearing" a crevasse or "negotiating" an awkward or risky corner. It is no longer the Englishman who makes himself a "candidate" for such a fate—the majority of victims having been Swiss, then Germans, then Englishmen, Austro-Hungarians and Italians coming next. Aviation, however, bids fair to outstrip "peak-storming" in its death roll if the present year's statistics are to be taken as earnest of the future.

Nov. 12th.

UNITED STATES OF AMERICA.

(FROM OUR OWN CORRESPONDENTS.)

The Physical Condition of Army Officers.

General Leonard Wood has issued an army order to the effect that all officers serving in the Department of the East shall take such constant and regular physical exercise as may be necessary to keep themselves at all times in physical condition to perform active duty with troops under war conditions. Post commanders are directed to arrange schemes for the exercise of officers under their command. All officers, save under certain specified conditions, are to exercise, preferably in the open, at least one hour a day, the standard being "a ride of four miles, or a walk of three miles within an hour," with the permissible substitution of "equivalent athletic sports or exercises" for variation. The order seems to be generally accepted in army circles as an excellent thing. General Wood has already shown the advantages of such training in the promotion of sanitation and hygiene in the army; it is, he believes, a factor of prime importance in the efficiency of troops as a fighting machine.

Pasteurised Milk for Infants in New York.

Mr. Nathan Straus, who now for some years has maintained at his own expense in New York depôts for the supply of pasteurised milk for the feeding of the infants of the poor, a few weeks ago announced his intention of discontinuing them because of the continual criticism of his methods. As the progressive decrease in the infant death-rate in that city seems to have been due in a considerable measure to his efforts, many citizens considered that until the city should be ready to continue his work the closing of these depôts would be a public calamity. A mass meeting was accordingly held on Oct. 8th at the Cooper Union, in which many prominent men, including such well-known persons as Professor Irving Fisher (of Yale), Father J. J. Curran, Commissioner C. J. Driscoll, Dr. Abraham Jacobi, and Secretary of State Koenig, were present. The meeting was attended by some 2000 people. The service rendered to the community by Mr. Straus's philanthropic efforts on behalf of the children of the poor was gratefully and gracefully acknowledged, and means were discussed of continuing the work in case Mr. Straus could not be induced to rescind his expressed determination. On Oct. 24th Mr. Straus held a conference with a committee appointed at a meeting of philanthropic agencies held on Sept. 7th, and as a result of its appeal he will continue for awhile the work initiated by him, in the hope that the city may take it up, and that other depôts in addition to the eight already sustained by himself may be opened by the efforts of others.

Prophylaxis against Cholera.

The Public Health and Marine Hospital Service is showing praiseworthy activity in respect of the threatened danger of the introduction of cholera into the United States. A death from cholera in quarantine at New York on an incoming vessel, and the subsequent development of another case on the same vessel, led to the instant coöperation of the service with the State health authorities. Intending emigrants to the United States from infected ports abroad are now detained for five days before being allowed to sail, and are again detained for the same space of time here in quarantine before being allowed to land. On release from quarantine such suspects will have to state their destinations, and information cards will be forwarded each day to the health officer of each place to which such persons are going, so that they may be kept under observation. A notable circumstance is the absence of panic following the discovery of the arrival of cholera cases in this country, a difference from the public emotion which followed the introduction of the disease on previous occasions, notably in 1892. This is a good sign of the increasing confidence in the effectiveness of official vigilance.

Abolition of the Public Drinking Cup.

Boston has abolished, under a regulation of the Massachusetts State Board of Health, the use of the public drinking cup in public parks, streets, buildings or premises used as a public hotel, theatre, public hall, or public school, railway station or car, steamboat or ferry-boat. Bubbling drinking fountains have been installed in many places and individual paper cups are rapidly being adopted.

The Antituberculosis Campaign.

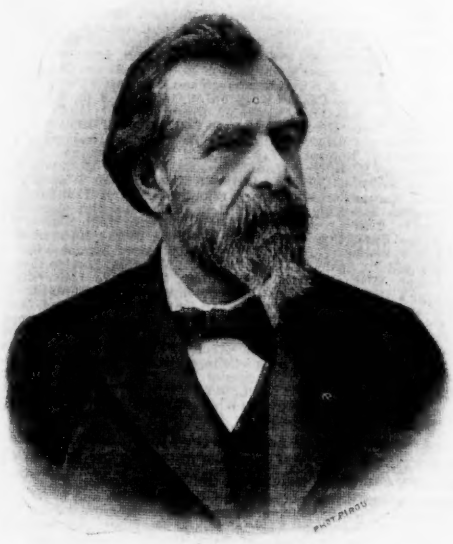
The new Sanatorium Directory, issued by the National Association for the Study and Prevention of Tuberculosis, shows over 400 sanatoriums and hospitals, 300 special tuberculosis dispensaries, and some 450 special antituberculosis associations and committees now existing in the United States. The first such directory was issued in 1904, and showed only 133 sanatoriums and hospitals, 32 special dispensaries, and 39 antituberculosis organisations; so that the increase in the last six years in antituberculosis agencies amounts to nearly 500 per cent. The directory also contains a summary of what has been effected by the various State legislatures and county and municipal governments in aid of the war against tuberculosis in this country.

Nov. 8th.

Obituary.

DR. LANCEREAUX.

Dr. Lancereaux has just died at the age of 80 years after a few days' illness from pneumonia. He was born at Brécy-Brières, in the Ardennes, on Nov. 27th, 1829, and during the early part of his professional career was in somewhat straitened circumstances, but his energy and capacity for work eventually raised him to a position of eminence. He was admitted *interne* in 1857, hospital physician in 1869, *agrégé* in 1872, and member of the Academy of Medicine in the Section of Pathological Anatomy in 1877, becoming president of the Academy in 1908. He made a number of original investigations, chiefly on questions of pathology, and in studying the lesions discovered post mortem he always endeavoured to trace their connexion with the symptoms observed during life. At first he interested himself mainly in disorders of the nervous system. His researches on nervous diseases due to syphilis were published at the end of his *internat* in 1861; his thesis on cerebral thrombosis and embolism appeared in the same year, and his memoir on meningeal hæmorrhage in 1863. Soon after this period he began to apply himself to the study of organic diseases produced by certain toxic agents; lead palsy and other



symptoms of lead poisoning were among the subjects on which he now worked, but it was in connexion with the visceral lesions attributable to the use of alcoholic beverages that his views attracted most attention. In consequence of the diversity of their composition such beverages act on the system in a variety of ways, and Dr. Lancereaux in elaborating this idea has given a clinical description of the special symptoms produced by absinthe-drinking. Subsequent researches on similar lines led him to the conclusion that the disease known as alcoholic cirrhosis was not one of the ordinary ills of life to which any kind of fermented liquor might give rise. Taking for granted that it occurred in wine-drinkers only, he sought for the toxic agent and convinced himself that it was neither alcohol nor any product of the vinous fermentation, but a mineral salt, bisulphate of potassium, and experiments which have been made on animals seem to confirm this view.

Dr. Lancereaux published a considerable number of works, including an Atlas of Pathological Anatomy, which appeared in 1871; an Historical and Practical Treatise on Syphilis in 1866 (with a second edition in 1873); a Treatise on Pathological Anatomy in 1875–85; a Treatise on Herpes in 1883; various volumes of clinical lectures in 1883, 1890, 1892, and 1894; a Treatise on Diseases of the Liver and Pancreas in 1899; and quite recently a Treatise on Gout. One of his most important discoveries was the relationship between diabetes and disease of the pancreas. Several observers had preceded him in remarking the frequency of lesions of the pancreas in diabetes, but he had the merit of recognising that a form of the latter disease with characteristic clinical symptoms—wasting diabetes—depended on inadequacy and ultimate destruction of the pancreas. It was in 1877 that he pointed out the special features of this condition—namely, the sudden onset, the immediate loss of flesh, the intense thirst and craving for food, and the rapid progress of the disease. On clinical and pathological grounds he called it pancreatic diabetes, a designation which has been justified by the subsequent observations of von Mering and Minkowski.

HUGH NORRIS, L.R.C.P., L.R.C.S. EDIN., L.S.A.

Mr. Hugh Norris died recently at his residence in South Petherton, Somerset, in his ninetieth year. Mr. Norris was born at South Petherton, where his father was a well-known medical practitioner and archæologist. He belonged to a very old Somerset family. His grandfather, Henry Norris, a famous schoolmaster at Taunton, is stated on a tablet in St. James's Church in that town to have been proficient in 24 languages, while another member of the family founded the first Taunton newspaper in 1725. In 1554 an ancestor, John Norris, represented Taunton in Parliament, and during the Civil War another member of the Norris family raised a troop of horse for King Charles.

Hugh Norris received his medical education at Edinburgh University and qualified L.R.C.S. of Edinburgh in 1848, being admitted L.R.C.P. of Edinburgh ten years later. After holding resident appointments at the Royal Maternity Hospital, Edinburgh, he joined his father in practice at South Petherton, where he soon became very popular. Shortly after settling down to practice he drew attention to a state of defective mental development associated with bodily deformity or arrested growth which existed in the village of Chiselborough, near South Petherton, in the "forties" of the last century. A correspondent writes as follows to us about Norris's observations:—

> Chiselborough is situated in a small valley closely surrounded on three sides by hills, about 400 or 500 feet in height, and at the time of the existence of this uncommon disease the lowest part was very damp and dirty, the temperature being very mild, and the village was open only towards the west, where flowed a deep sluggish river called the Parrett. In recording the occurrence Mr. Norris described the inhabitants as "unfortunate beings," exceedingly unprepossessing, small in stature—one, a female, aged 30, only reaching three feet and a half—and in most cases thick-set. Their heads were large and covered with a profusion of very coarse ragged or bristly hair of a dark brown colour, while their limbs were bony and exceedingly ill-formed. The contour of the face was wide and flat, forehead very low, and slightly receding. The eyes were small and sunken, the nose flat, almost like that of a negro, the mouth large, and the lips thick. The walk of these cretins, if they might be so called, was most ungainly, and resembled more the waddle of a duck while they were generally very weakly both physically and intellectually. Out of a population of about 540 Mr. Norris found some twenty were idiots, while the majority had an obvious deficiency of intellect, were more than usually dull of perception, had a very marked impediment in their speech, and were, he believed, without an exception, affected with the disease known as bronchocele. He was of opinion that the cause of the malady was the effect of a combination of circumstances. The water was of a very inferior quality, the air very impure from the absence of any current through the village in consequence of its being so closely hemmed in on three sides by hills, as well as from a great quantity of decaying vegetable matter at certain seasons of the year arising from the orchards in the immediate neighbourhood, while several stagnant pools also existed in the place. Circumstances such as these combined to render the village so uninviting to strangers that intermarriage among the poor inhabitants was most prevalent; and thus, said Mr. Norris, was unwittingly completed the unfortunate combination of circumstances which may have produced such miserable results.

We are unaware if this vivid piece of clinical observation received the attention which it would seem to have deserved.

Mr. Norris took a great interest in archæological pursuits, as did his father before him, and formed an interesting collection of great local archæological value, which he presented to the county museum at Taunton, where it is known as the "Norris Collection." He had at one time an extensive practice in West Somerset but for several years he had retired from active work. In his younger days his literary bias was strong and he contributed articles to THE LANCET and other medical papers, and was besides the author of an interesting topographical note, "South Petherton in the Olden Time,"

as well as of several instructive papers communicated to the Somerset Archæological Society; while he was the first editor of "Somerset and Dorset Notes and Queries."

The funeral took place at South Petherton on Nov. 4th.

VIOLET ACKROYD TURKHUD, M.D., B.S. LOND.

THE medical women of India have lost a colleague by the death of Miss Violet Ackroyd Turkhud in Bombay from enteric fever. She was educated at Bedford College and the London School of Medicine for Women. She qualified in 1906, taking the degree of M.B., B.S. Lond. After some post-graduate work in England, she went to India, where for some months she was on the staff of the Dufferin Hospital, Delhi. Next she was in charge of the Women's Hospital, Alwar. In 1909 she returned to England and took the degree of M.D. Lond., with honours in pathology. After working for some months at the School of Tropical Medicine, Liverpool, she obtained the Diploma in Public Health. In February, 1910, she went back to India and began a practice in Bombay. She was engaged in research work in pathology at the Cancer Hospital for some months before her death, which occurred on Oct. 18th. Her cheeriness of disposition made her universally popular. She was a keen student and an enthusiastic worker in her profession, and her untimely death, at the beginning of what promised to be a most useful and distinguished career, is mourned by a wide circle of friends both in India and in England.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At a meeting of the Comitia of the Royal College of Physicians of London on Oct. 27th, and of the Council of the Royal College of Surgeons of England on Nov. 10th, Diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following gentlemen, who have passed the Final Examination of the Conjoint Examining Board and have complied with the by-laws of the Colleges:—

William Arthur Anderson, B.A.Cantab., Cambridge University and Queen's College, Belfast; Richard William Annison, Middlesex Hospital; Sydney Vere Appleyard, St. Thomas's Hospital; Helton Godwin Baynes, Cambridge University and St. Bartholomew's Hospital; Benjamin Bernstein, London Hospital; Guy Capper Birt, L.D.S.Eng., St. Thomas's Hospital; Aleck William Bourne, B.A.Cantab., Cambridge University and St. Mary's Hospital; Edmund Boyd, B.A., M.B.Toronto, Toronto University and University College Hospital; Edward Geoffrey Stayner Cane, B.A.Cantab., Cambridge University and St. Bartholomew's Hospital; William Edgar Carter, Leeds University; Alfred Ernest Dagnall Clark, St. Bartholomew's Hospital; Guy Barton Cockrem, Guy's Hospital; Leonard Kingsford Cooper, University College Hospital; James Cowan, Manchester University; Oswald Tilson Dinnick, M.B.Toronto, Toronto University and London Hospital; Arthur William Donaldson, Oxford University and St. Thomas's Hospital; Sandbrook Falkner, London Hospital; *Walter Egbert Fox, Guy's Hospital; Alfred John Gibson, St. Bartholomew's Hospital; Alexander Kennedy Glen, Glasgow University, St. Mary's and Middlesex Hospitals; Wilfrid Montague Glenister, St. Bartholomew's Hospital; Ernest St. George Sagar Goodwin, B.A.Cantab., Cambridge University and St. Thomas's Hospital; Frank Cyril Greig, Otago University and University College Hospital; Alexander Keith Hamilton, St. Thomas's Hospital; Hubert Alfred Harris, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Arthur Stanley Heale, London Hospital; Augustus Joseph Hickey, Westminster Hospital; Arthur Hilary Clifton Hill, Middlesex Hospital; John Percival Hill, M.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Jordan Constantine John, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; William Henry Talfourd Jones, King's College and Guy's Hospitals; Joseph Bagnall Jordan, Birmingham University; Theodore Hartmann Just, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Charles Dones Killpack, Guy's Hospital; Clifford Yule Laing, Manchester University; William Bertram Laurence, University College, Cardiff, and Middlesex Hospital; Martin Wentworth Littlewood, St. Thomas's Hospital; Albert Victor McMaster, B.A., Queen's College, Belfast, and London Hospital; Godfrey Kindersley Maurice, St. Mary's Hospital; Rustom Dhunjibhoy Mody, L.M.S. Bombay, Bombay University and University College Hospital; Carl Euclid Molino, Birmingham University; Gustave Jean Philippe Monod, M.D. Paris, Paris University; Raymond Montgomery, Leeds University and Guy's Hospital; Albert Ernest Moore, London Hospital; Gilbert Moore, Cambridge University and King's College Hospital; Henry Clarence Wardleworth Nuttall, Liverpool University; Charles Edward Hewitt Paley, Westminster Hospital; Georg Natanael Palmaer, London Hospital; Henry Brice Parker, Bristol University and London Hospital; Ardeshir Beheramshah Pestonji, B.A., L.M.S. Bombay, Bombay University and London Hospital; Harold Ferdinand Renton, Leeds University and Guy's Hospital; William Reynolds, L.D.S.Eng., Guy's Hospital; Quintin Hume Richardson, Guy's Hospital; Behram Pestonjee Sabawala, L.M.S. Bombay, Bombay University and London Hospital; Herbert Henry Sampson, M.B., Ch.B. Birm., Birmingham University; Alexander Rutherford Prinski Scott, London Hospital; William Faulkner Valentine Simpson, London Hospital; Charles James Stocker, Cambridge University and St. Bartholomew's Hospital; Martin Phillips Thomas, Glasgow University, Cardiff and University College Hospitals; Graham Yalden Thomson, Guy's Hospital; Richard Teodor Timberg, St. Mary's and St. Thomas's Hospitals; Henry Shemeld Tumber, Sheffield University; Arthur Bayford Guy Underwood, University College Hospital; Wallace Robert Wade, M.B., Ch.B. Liverpool, Liverpool University; Percy Boyd Wallis, B.A. Cantab., Cambridge University and St. Bartholomew's Hospital; Hugh Wetherbee, London Hospital; *Edward Vernon Whitby, M.B., Ch.B. Birm., Birmingham University; and Sydney Williams, University College, Cardiff, and London Hospital.

* Diploma of M.R.C.S. conferred on Oct. 13th, 1910.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the First Professional Examination in Anatomy and Physiology for the Diploma of Fellow, held on Nov. 3rd, 4th, 8th, 9th, 10th, and 11th, 117 candidates presented themselves, of whom 39 were approved and 78 were rejected. The following is a list of the successful candidates:—

Casement Gordon Aickin, M.B., Ch.B. Otago, Otago University and Middlesex Hospital; Francis Gordon Bell, M.B., Ch.B. Edin., Edinburgh University and King's College; Ellis Campbell Bowden, London Hospital; Geoffrey Williams Carte, B.A. Oxon., Oxford University and St. Bartholomew's Hospital; Arthur Chance, B.A., Trinity College, Dublin, National University of Ireland; James Harris Connolly, M.D., Ch.B. Edin., Edinburgh University and London Hospital; Charles Harold Crawshaw, B.A. Cantab., Cambridge University and King's College; Michael Joseph Cronin, London Hospital; Francis Eldon Daunt, St. Thomas's Hospital; Hector Wynne Davies, University College; Richard Denis Davy, London Hospital; George Rowland Dobrashian, University College; Victor William Draper, B.Sc. Lond., King's College; John Everidge, L.R.C.P., M.R.C.S., King's College; Philip Ferguson, M.B., Ch.B. Manch., Manchester University and London Hospital; Walter Barham Foley, St. Thomas's Hospital; Philip Julius Franklin, L.R.C.P., M.R.C.S., King's College and Middlesex Hospital; Henry George Frean, M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Cambridge University and London Hospital; Robert Coltart Harkness, M.B., Ch.B. Edin., Edinburgh and Manchester Universities and King's College; Charles Colgate Holman, B.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., Cambridge University and Guy's Hospital; Robert Lister Horton, University College; Cecil Meredyth Jones, University College, Cardiff, and Westminster Hospital; Charles Matheson Kennedy, L.R.C.P., M.R.C.S., London Hospital; Farquhar McGillivray Loughnane, St. Thomas's Hospital; Robert John McConnell, Belfast University and London Hospital; Kenneth Mackenzie, M.B., Ch.B. Edin., Otago and Edinburgh Universities and King's College; Henry Price Malcolm, Queen's University, Belfast, and London Hospital; Henry Hugh Mathias, Cambridge University and London Hospital; Jivray Narayan Mehta, L.M.S. Bombay, Bombay University and London Hospital; Alexander Croydon Palmer, L.R.C.P., M.R.C.S., London Hospital; Joseph Michael Petty, B.A. Cantab., Cambridge University and King's College; Edward Rayner, B.A. Cantab., Cambridge University and St. Thomas's Hospital; John Magnus Redding, Charing Cross Hospital; Pierre Roux, London Hospital; John Thompson, M.B., B.S., B.Sc. Lond., M.B., Ch.B. Vict., Manchester University and London Hospital; John Raymond Waddy, B.A. Cantab., Cambridge University and King's College; Gilbert Bertram Warburton, M.B., Ch.B. Manch., Manchester University; David Waterston, M.D., M.Ch., F.R.C.S. Edin., Edinburgh University and King's College; and Syer Barrington White, B.A. Oxon., Oxford University and Westminster Hospital.

At a meeting of the Council on Nov. 10th licences to practise dentistry were conferred upon the following gentlemen, who have now complied with the by-laws:—

Percy George Hastings Cox-Moore, Charing Cross and Royal Dental Hospitals; George Vivian Dymott, Guy's Hospital; John Trude Fripp, Middlesex and National Dental Hospitals; Arthur William Johnson, Charing Cross and Royal Dental Hospitals; and John Knowles, Charing Cross and Royal Dental Hospitals.

At the First Professional Examination for the Licence in Dental Surgery held this month the following gentlemen were approved in the under mentioned subjects:—

Mechanical Dentistry and Dental Metallurgy.—Henry John Farrow Alexander, Royal Dental Hospital; Oswald Gelling Aylen, Charles Layton Balkwill, and Horace Edgar Bampton, Birmingham University; Victor Louis Sydney Beckett, Royal Dental Hospital; David Cohen Bernstein, Birmingham University; Charles Cecil Blundell, Royal Dental Hospital; Robert Leslie Booth, Birmingham University; Alan Darcy Buck, Guy's Hospital; Cyril Holland Child, Royal Dental Hospital; James Percy Cocker, Leeds University; Herbert Howard Cooke, Royal Dental Hospital; George Basil Cooksey, Liverpool University; Eric Sutton Dickin, Liverpool University; Gilbert George Ellis, Manchester University; Louis Edward Forster, Liverpool University; John Harvey Havers Griffin, Guy's Hospital; Robert Karl Gundlach, Royal Dental Hospital; John Gordon Harris, Manchester University; Harold Harvey, Birmingham University; Thomas Eric Henderson and Montagu Fred Hopson, Guy's Hospital; George Denis Iles, Leeds University; Andrew Lawrey, Iorwerth Hubert Lloyd-Williams, William Douglas McDonald, Gerald Struan Marshall, and William Henry Matthews, Royal Dental Hospital; Donald Bernard Morrish, Guy's Hospital; Charles Edward Murch, National Dental Hospital; Hugh Bertram Neely, Guy's Hospital; Charles Justin O'Callaghan, Royal Dental Hospital; William Parry, Liverpool University; Ivan Wallace Pasmore, Guy's Hospital; Arthur Norman Paul, Royal Dental Hospital; Leonard Robert Pickett, Guy's Hospital; Gilbert John

Stuart Rose, National Dental Hospital; Max Schneider, Guy's Hospital; Sydney Frank Simpson and William Joseph Singleton, Royal Dental Hospital; Frank Bedford Stradling and Whalley Seath Stranack, Guy's Hospital; Percival Washington Symons, Royal Dental Hospital; Sidney Thomas Taylor, National Dental Hospital; John Alphonsus Tighe, Royal Dental Hospital; Thomas Bernice Tustian, Guy's Hospital; George Lotan Venning, National Dental Hospital; and Reginald Wallace White, Royal Dental Hospital.

Mechanical Dentistry.—Patrick Boyle, Royal Dental Hospital; Arnold John Chapman, Guy's Hospital; Edmund Rupert Dermer, National Dental Hospital; Phillip Louis Ealand, Bristol University; Clementson Glover, Guy's Hospital; George Hobbs, Birmingham University; Charles Henry Housden, Guy's Hospital; Michael William Joseph and Denis Foster Lewis, Birmingham University; Lancelot Turtle Montgomery, Raphael Neft, Percy John Peatfield, Charles Joseph Phillips, and John Hampden Ross, Guy's Hospital; Leslie Shovelton, Birmingham University; and Joseph Leslie Tucker, Royal Dental Hospital.

Dental Metallurgy.—Marcel Adé, Lausanne University; Francis Edward Stuart Bralisford, Royal Dental Hospital; Ralph Alexander Broderick, Birmingham University; Henry O'Neil Butler, Montague Kempston Butler, and Gordon Robert Craig, Royal Dental Hospital; Gwilym Tremain Davies, National Dental Hospital; Harold Graham Elliott and William Trevor Flooks, Guy's Hospital; William Francis Gawne, Liverpool University; Walter Henry Glover and Ernest Sharman Ruckett, Guy's Hospital; Hubert Humphry, Royal Dental Hospital; Bertrand Kemp Jackson and Reginald Charles Kershaw, Liverpool University; John Farnham Mace, Birmingham University; Gustavus Leigh Pemberton, Guy's Hospital; Arthur Ridges Rowe, National Dental Hospital; Archibald Frank Salsbury, Guy's Hospital; Alan Douglas Edward Shefford, National Dental Hospital; and Frank Wisher, Guy's Hospital.

DONATIONS AND BEQUESTS.—Queen Alexandra has given £100 to the Prince Francis of Teck Memorial Fund. Among the gifts promised is one of £2000 "In Memoriam."

THE NOBEL PRIZES.—The Nobel Prize for chemistry, which amounts to 195,285 francs (£7811) has been awarded to Professor Otto Wallach of Göttingen University.

MEDICAL FEES AT THE LYME REGIS COTTAGE HOSPITAL.—At the annual meeting of the subscribers of the Lyme Regis (Dorset) Cottage Hospital, which was held on Nov. 3rd, some discussion arose in reference to the question of fees. A subscriber stated that some of the patients at the institution had had to pay for the services of the medical man, and this, he contended, was entirely against the principles of a cottage hospital. The chairman, in reply, said one of the rules stated "that those patients who in the opinion of the finance committee could afford to pay the medical attendant's fees should do so," and he added that if any medical officer charged fees without the finance committee's sanction he infringed that rule. After some discussion a subcommittee was appointed to confer with the medical officers on the matter.

MEDICAL FEES UNDER THE MIDWIVES ACT.—The Woolwich borough council has sent a circular letter to the other metropolitan borough councils with reference to the provisions of Section 17 of the Midwives Bill, relating to the payment by boards of guardians of fees to medical practitioners summoned upon the advice of a certified midwife in cases of emergency, more particularly in cases of infants suffering from inflammation of the eyes. The letter states that the Woolwich borough council is strongly of opinion that the London County Council should be the authority to pay the fees of medical practitioners instead of the board of guardians, and that the Lord President of the Council has been asked to amend the Bill in the direction indicated. The other metropolitan borough councils are requested to take similar action.

UNIVERSITY OF OXFORD: RADCLIFFE PRIZE, 1910–1911.—The next award for this prize will be in the year 1911. The prize, which is of the value of £50, is awarded by the Master and Fellows of University College every second year for research in any branch of medical science comprised under the following heads: Human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynæcology, forensic medicine, hygiene. The prize is open to all graduates of the University who shall have proceeded or shall be proceeding to a medical degree in the University. Candidates must not have exceeded 12 years from the date of passing the last examination for the degree of Bachelor of Arts and must not at the date of application be Fellows on the foundation of Dr. John Radcliffe. Candidates must send in their memoirs to the University Registry on or before Dec. 1st, 1910. The award will be made in March, 1911.

THE ROCKEFELLER INSTITUTE.—The following appointments have been made to the staff of the Rockefeller Institute for Medical Research: Dr. Francis Henry McCrudden, Dr. Thomas S. Githens, Dr. James B. Murphy, Dr. A. R. Dochez, Dr. F. Medigreceanu, and Dr. W. H. Manwaring.

NEW CHEMICAL LABORATORIES AT UNIVERSITY COLLEGE, LONDON.—In April we brought before our readers an appeal for £70,000 for providing new chemical laboratories at University College, London, including the purchase of a site in Gower-place. The death of the King a few days before the date arranged for a meeting at the Mansion House, and the consequent postponement of the meeting gave a check to the work of the appeal committee. Sir Henry Roscoe, chairman of the appeal committee, has now laid before the public the urgency of the situation in which the appeal is placed. The appeal has two objects. The first is to raise a sum of £25,000 for the acquisition of the proposed site which adjoins the College, and which, Sir Henry Roscoe points out, is an eminently suitable one. The second is to raise £45,000 to erect the laboratories. The sum of £25,000 must be raised before next Christmas Day if the Senate of the University is to be in a position to exercise the option which it holds to purchase the site. Towards this sum the committee has collected over £9000, leaving a balance of £16,000 to be raised forthwith. The sum which has been already collected has come to a large extent from members of the University and friends of the College. The Chancellor, Lord Rosebery, has headed the subscription list with £1000. Substantial help has also been given by the City Companies and by several prominent business houses. The Drapers' Company have promised £500, provided the site is secured before the expiry of the option. The Merchant Taylors' Company have promised £262 10*s.*, while the Grocers' Company have contributed £250 and the Fishmongers' Company £105. With respect to the contributions from business houses it may be mentioned that the Liebig's Extract of Meat Company have contributed £105, while Messrs. Glyn, Mills, Currie and Co. and Messrs. Spencer, Chapman, and Messel have each given £100. Other important contributions are £500 each from His Grace the Duke of Bedford, Mr. Otto Beit, and Mr. James Eccles. Sir Henry Roscoe appeals "to all those who realise the national importance of scientific research and its bearing upon the commercial prosperity of the country, to those Londoners who desire to see university teaching in London developed in accordance with the needs of the nation, and also to the many friends and admirers of Sir William Ramsay, the Professor of General and Inorganic Chemistry at University College, to assist in the attempt to provide new chemical laboratories by gifts which will ensure the acquisition of the site." Donations should be addressed to Sir Henry Roscoe at University College, London.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BERKELEY, COMYNS, M.B., B.C. Cantab., F.R.C.P. Lond., has been appointed an Examiner in Obstetrics at the University of Oxford.

BUNN, R. A., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

CUNNING, JOSEPH, M.B., B.S. Melb., F.R.C.S. Eng., has been appointed Surgeon to the Cancer Hospital.

CUSHNY, A. R., M.B., M.S. Aberd., has been appointed an Examiner in Materia Medica at the University of Oxford.

DALTON, ERNEST C., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

DODDS-PARKER, A. P., M.B., B.S. Oxon., F.R.C.S. Eng., has been appointed an Examiner in Human Anatomy at the University of Oxford.

GOTCH, FRANCIS, M.R.C.S., F.R.S., has been appointed an Examiner in Physiology at the University of Oxford.

GOVAN, ROBERT, M.B., B.S. Glasg., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

HOPE, CHARLES W. M., M.D. Durh., F.R.C.S. Eng., has been appointed Assistant Surgeon to Golden-square Throat Hospital, W.

HUGHES, W. STANLEY, M.R.C.S., L.R.C.P. Lond., has been appointed Medical Superintendent of the North Wales Asylum.

ILLINGTON, E. M., Major, I.M.S., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

KIDD, PERCY, M.D. Oxon., F.R.C.P. Lond., has been appointed an Examiner in Medicine at the University of Oxford.

LEISHMAN, Sir WILLIAM B., M.B., M.S. Glasg., has been appointed an Examiner in Pathology at the University of Oxford.

LOOSELY, CHARLES J., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to the Hospital for Sick Children, Great Ormond-street, W.C.

MILNE, CHARLES, Major, I.M.S., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

NEVY, C O., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

PRIDMORE, J. W., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Ryde District of the Isle of Wight.

REES, W. T., M.R.C.S., L.S.A., has been appointed Medical Officer to the Llanwrtyd Urban District Council.

RUSSELL, M. J., L.R.C.P. & S. Irel., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

SMITH, F. J., M.D. Oxon., F.R.C.P. Lond., has been appointed an Examiner in Forensic Medicine and Hygiene at the University of Oxford.

STIFF, H. H., M.B. Cantab., has been appointed Medical Attendant to the Alexandra Home for Children, Bury St. Edmunds.

TAGGART, C. C., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

TREADGOLD, H. A., L.R.C.P. Lond., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

WHITTON, JAMES, M.D. Irel., has been appointed Clinical Assistant to the Samaritan Free Hospital for Women.

WRIGHT, GARNETT, M.B., Ch.B. Edin., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Salford Royal Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ALBERT DOCK HOSPITAL, Connaught-road, E.—Senior House Surgeon, also House Surgeon, both for six months. Salary £100 and £50 per annum respectively, with board, residence, and washing.

BETHLEM HOSPITAL.—Resident House Physician, unmarried, for six months. Salary at rate of £25 per quarter, with apartments, board, and washing.

BERWICK, COUNTY OF.—Medical Officer of Health. Salary £400 per annum.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—Resident Surgical Officer. Salary £100 per annum, with board and attendance.

BODMIN, CORNWALL COUNTY COUNCIL.—County Medical Officer of Health. Salary £500 per annum.

BRISTOL ROYAL INFIRMARY.—Honorary Dental Anæsthetist.

CARDIFF INFIRMARY (GENERAL HOSPITAL).—Senior Resident Medical Officer. Salary £120 per annum, with board, washing, and apartments. Also House Surgeon for six months. Salary £30, with board, residence, and laundry.

COVENTRY AND WARWICKSHIRE HOSPITAL.—Junior House Surgeon. Salary £80 per annum, with rooms, board, washing, and attendance.

DUBLIN, ROYAL HOSPITAL FOR INCURABLES, Donnybrook.—Resident Medical Officer, unmarried. Salary £120 per annum, with board and apartments.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, Shadwell, E.—Resident Medical Officer. Salary £100 per annum, with board, residence, and laundry. Also Medical Officer for six months. Salary at rate of £100 per annum, with luncheon and tea provided.

EDMONTON UNION INFIRMARY, Bridport-road, Upper Edmonton.—Two Resident Assistant Medical Officers, unmarried. Salary of first officer £140 per annum, and second £120 per annum.

HASTINGS, ST. LEONARDS, AND EAST SUSSEX HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with rooms, board, and washing.

HEREFORDSHIRE COUNTY COUNCIL.—Assistant Medical Officer of Health. Salary £250 per annum.

HOSPITAL FOR EPILEPSY AND PARALYSIS AND OTHER DISEASES OF THE NERVOUS SYSTEM, Maida Vale, W.—Resident Medical Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, apartments, laundry, &c.

KENT EDUCATION COMMITTEE.—Medical Inspector of School Children. Salary £250 per annum.

KIRKMABRECK PARISH.—Medical Officer. Salary £40 per annum.

LAMBETH, PARISH OF.—Chief Medical Officer. Salary £500 per annum, with furnished house, and allowance of coals, gas, and water.

LONDON COUNTY OF.—Twenty-eight Assistant School Doctors in Public Health Department of London County Council. Salary £120 per annum.

LONDON LOCK HOSPITAL.—House Surgeon and Assistant House Surgeon to Female Hospital. Salary £100 and £80 per annum respectively, with board, lodging, and washing. Also House Surgeon to Male Hospital. Salary £100 per annum, with board, lodging, and washing.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £105 per annum.

PUBLIC DISPENSARY, 122, Drury lane, W.C.—Resident Medical Officer. Salary £105 per annum, with apartments.

ROBERT BROWNING SETTLEMENT, Walworth, S.E.—Honorary Superintendent.

ROYAL HOSPITAL OF BETHLEM, Lambeth-road, S.E.—Resident Physician and Medical Superintendent. Salary £750 per annum.

ROYAL WESTMINSTER OPHTHALMIC HOSPITAL, King William-street, West Strand, W.C.—Assistant House Surgeon for six months. Salary £20, with luncheon and tea.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.—Honorary Anæsthetist.

SALFORD COUNTY BOROUGH FEVER HOSPITAL.—Assistant Medical Officer. Salary £150 per annum, with apartments and board.

SALFORD ROYAL HOSPITAL.—Honorary Assistant Surgeon.

SHEFFIELD CHILDREN'S HOSPITAL, EAST END BRANCH.—House Surgeon. Salary £70 per annum, with board, lodging, and washing.

SHEFFIELD UNION HOSPITAL.—Resident Assistant Medical Officer, unmarried. Salary £100 per annum, with apartments, rations, &c.

SOUTH UIST.—Medical Officer. Salary £100, with house.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—Assistant House Surgeon. Salary £82 per annum, with board, residence, and laundry.

STOCKPORT INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and washing.

STOCKTON-ON-TEES, STOCKTON AND THORNABY HOSPITAL.—House Surgeon, unmarried. Salary £180 per annum, with residence, board, and washing.

STOKE-ON-TRENT, COUNTY BOROUGH OF.—Medical Officer (female). Salary £250 per annum.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

THROAT HOSPITAL, Golden-square, W.—Resident House Surgeon. Salary £75 per annum, with board, residence, and laundry.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.—Resident Medical Officer.

UNIVERSITY OF LONDON.—Examiners.

WARMINSTER UNION, Wilts.—District Medical Officer and Public Vaccinator. Salary £90 per annum.

WEST HAM AND EAST LONDON HOSPITAL, Stratford, E.—Two Honorary Physicians and Three Honorary Surgeons. Also House Surgeon. Salary £100 per annum, with board and rooms.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Physician. Also Honorary Medical Registrar. Also House Physician for six months. Board, lodging, and laundry allowance provided.

WESTMINSTER HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board and residence.

WINDSOR, KING EDWARD VII. HOSPITAL AND DISPENSARY FOR WINDSOR, ETON, AND DISTRICT.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, laundry, &c.

YORK COUNTY HOSPITAL.—House Physician. Salary £100 per annum, with board, residence, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Twyford, in the county of Berks.

Births, Marriages, and Deaths.

BIRTHS.

BOUSFIELD.—On Nov. 15th, at Princes-square, W., the wife of Stanley Bousfield, M.D., of a son.

BRAINE-HARTNELL.—On Nov. 12th, at Weston House, Cheltenham, the wife of Christopher Braine-Hartnell, F.R.C.S. Edin., of a son.

DANIEL.—On Nov. 14th, at Upper Wimpole-street, W., the wife of Peter Daniel, F.R.C.S., of a son.

THOMSON.—On Nov. 7th, at Blenheim-place, Edinburgh, the wife of H. Torrance Thomson, M.D., of a son.

YOUNG.—On Nov. 8th, at Camden-crescent, Dover, the wife of Dr. Francis Percy Young, of a daughter.

MARRIAGES.

COPE—NORTON.—On Nov. 9th, at St. Mark's, Brighton, Ricardo Cope, M.R.C.S., to Ethel Amy, youngest daughter of the late George Norton and of Mrs. Norton.

HAY—BECK.—On Nov. 12th, at St. Augustine's, Broxbourne, Herts, Kenneth Robert Hay, M.B., to Rachel, second daughter of Mr. and Mrs. Ernest Beck.

MACKENZIE—KENNEDY.—On Nov. 16th, at St. Luke's, Nightingale-lane, S.W., by the Right Rev. Bishop Welldon, the Rev. Canon Clarke, and the Rev. B. Dulley, Stephen Morton Mackenzie, M.A., M.B., B.C., of Rose Hill, Dorking, eldest son of the late Sir Stephen Mackenzie, M.D., of Cavendish-square, to Edith Madeline, eldest daughter of the late Arthur Kennedy of 4, Clement's Inn and Epsom.

WATSON—FITHIAN.—On Nov. 11th, 1910, at the Marshall-street Presbyterian Church, Portland, Oregon, U.S.A., by the Rev. Charles Hays, D.D., William Bertram Watson, M.D. Lond., of Harrogate, son of the late John Watson of Stockton-on-Tees, and Mrs. Watson of Ilkley, to Pauline Chapman, only daughter of Mr. and Mrs. O. H. Fithian of Portland, Oregon, U.S.A.

DEATHS.

CAVERHILL.—On Nov. 4th, at Jedneuk, Jedburgh, the residence of his brother, Thomas Francis Spittal Caverhill, F.R.C.P. Edin.

TOOVEY.—On Nov. 6th, at Jebba, Southern Nigeria, Thomas Edward Fraser Toovey, F.R.C.S. Edin., West African Medical Staff, aged 43.

TURKHUD.—On Oct. 15th, at Bombay, India, from enteric fever, Violet Ackroyd Turkhud, M.D., B.S. Lond.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE DETECTION OF WORM-EATEN DRUGS.

A CONTRIBUTION to the literature concerning the examination of drugs was made by Professor H. G. Greenish in a paper read at this month's evening meeting of the Pharmaceutical Society. It is not a difficult matter to distinguish sound from worm-eaten drugs when the samples examined are in the crude state, but hitherto no satisfactory method has been suggested for detecting powdered drugs prepared from drugs which have been attacked by insects. Professor Greenish and Miss D. M. Braithwaite, however, have been investigating the subject, and in the paper referred to describe a method by which the presence of minute traces of the drug-room beetle (*Sitodrepa panicea*) in powdered drugs can be shown. This little insect belongs to the family of which the various members are to be found in old houses, furniture, and palings, in collections of dried plants, in biscuits, and in many other substances. The quantity of mature beetle present in an infested drug is so small that its detection by direct examination under the microscope is practically impossible, and some other method had therefore to be devised. This consists in destroying the organic matter of the powdered drug by a process which leaves nothing but sand and particles of beetle which are separated by centrifugation, washed, and mounted. The particles of beetle are then readily detected under the microscope by their conspicuous brown colour, and most of them exhibit either hairs or the scars of hairs. By this means it is possible to detect so small a quantity as 0·00001 gramme of beetle in 5 grammes of powdered drug. Professor Greenish and Miss Braithwaite have examined a number of specimens of powdered drugs and spices and have found particles of beetle in ginger, nutmegs, coriander, dandelion root, ergot, and belladonna root and leaves. So ubiquitous is the pest that considerable discretion must be exercised before condemning a powder in which traces only of it can be detected. At the same time Professor Greenish and Miss Braithwaite express the opinion that although its presence does not appear to be injurious to health, it seems obvious that powders prepared from worm-eaten spices or drugs should not be offered for sale to the prejudice of the purchaser, or in undue competition with those prepared from sound materials.

"SCIENCE AND SINGING."

To the Editor of THE LANCET.

SIR,—Had your reviewer been more up to date in the matter under consideration the reading of my book would not have given him such a violent shock, for he would have known that in November last year (that is two months after the publication of "Science and Singing") Dr. Marage of Paris presented to the Académie des Sciences an account of his laryngological experiments, and he stated therein that he had come to the conclusion that the vocal cords do not in themselves produce sounds. Further, I have before me as I write a copy of *Le Bulletin Médical* (of Paris) of April 17th, 1887, wherein mention is made by medical men of different cases where patients have both talked and sung after the extirpation of the vocal cords.

Letters from medical men bearing testimony to the practical value of my work can be seen in the *Musical Standard* of Jan. 15th and 22nd of this year. I will close with an extract from a French review of my book just to hand: "Les esprits superficiels n'y verront qu'une hérésie de plus en la matière; mais je n'hésite pas à penser que ceux qui le liront attentivement se laisseront convaincre, et sauront gré à l'auteur d'avoir en assez d'indépendance pour exposer ses propres idées."

I am, Sir, yours faithfully,

Broadwood's Studios, Conduit-street, W., Oct. 21st, 1910. ERNEST G. WHITE.

*** We cannot accept Mr. White's physiology, though it has, in his opinion, been supported by Dr. Marage; we should be interested to hear Dr. Marage's views on Mr. White's book.—ED. L.

CONFERENCE ON CHOCOLATE AND COCOA.

AT the International Food Congress which was held in Paris in 1909 there were many discussions on the subject of what should constitute purity in cocoa and chocolates, but the findings of the Congress were not universally accepted. A desire has arisen for a special Congress in connexion with the subject, and it has been arranged that such should take place in Paris in January, 1911, when there will be present delegates from Germany, England, Austria-Hungary, Belgium, Brazil, Spain, the United States, France, Holland, Italy, Mexico, and Switzerland. The Congress will be limited to five representatives from each nation, and each nation will only have the right to one vote. The Congress is being arranged under the auspices of the White Cross Society of Geneva, whose delegate in the United Kingdom is Mr. Loudon M. Douglas, F.R.S.E., of 3, Lauder road, Edinburgh.

THE ALLEGED SPECIFIC ORGANISM OF YELLOW FEVER.

To the Editor of THE LANCET.

SIR,—You will greatly oblige me by stating what was really the so-called *Micrococcus tetragenus fevre flava*, discovered by Dr. Carlos I. Finlay, of this capital city of Cuba, as the germ of yellow fever. I have a vague remembrance that Dr. George M. Sternberg made a thorough study of that discovery.

I am, Sir, yours faithfully,

A. M. FERNANDEZ DE YBARRA, M.D.,
Lately of New York City.

Havana, Cuba, Oct. 24th, 1910.

*** The organism which Dr. C. Finlay of Havana claimed to have identified as the specific microbe of yellow fever was carefully investigated on behalf of the United States Government by Dr. G. M. Sternberg, who reported adversely of Dr. Finlay's discovery. This same expert also investigated the contention of several other discoverers who put forward certain other microbes, each as the true cause of yellow fever, but equally with unfavourable results. The germ of the disease has not been discovered beyond dispute; and authorities are fairly well agreed that it almost certainly is not a bacterium but a protozoon, ultra-microscopic and therefore not recognisable with our present means. The Micrococcus tetragenus, as known to bacteriologists at the present time, is often found in suppuration in the region of the mouth or neck, and it also occurs in the lungs. It probably has a pyogenic action in the human subject. It is often found associated with other micro-organisms. When injected into mice it causes septicæmia. Cases of pyæmia in man have been reported where the M. tetragenus was found in pure culture.—ED. L.

THE DESTRUCTION OF FLEAS.

To the Editor of THE LANCET.

SIR,—In answer to "Medicus," I give my experience. During residence in a workhouse infirmary, which involved frequent visits to the receiving ward, I kept drops of eucalyptus oil on (*a*) ankles, (*b*) wrists, and (*c*) neck, with successful results. I also carried a chloroform drop-bottle for emergencies. At another time, being resident in a hospital, and my bed being infested with pulices, I emptied one ounce of eucalyptus oil on the mattress. Cats and padded chairs have been treated successfully in the same way. The practice of fixing bags of camphor on the bottoms of the trousers is of comparatively little use. As for the destruction of fleas, dust is proved to be favourable, if not necessary, for their morphological changes. According to the "Cambridge Natural History," the Pulex irritans breeds freely in an uninhabited apartment. The larva of the Pulex serraticeps (cat and dog flea) has been reared on the sweepings of an ordinary room. The development of a generation of the serraticeps appears to be two or three weeks.

I am, Sir, yours faithfully,

Nov. 12th, 1910. FLEBILIS OCCIDIT.

A SUGGESTION FOR TREATMENT OF ARTHRITIS OF THE KNEE-JOINT.

To the Editor of THE LANCET.

SIR,—In reply to "M.D." (THE LANCET, Nov. 5th, p. 1392), I may say that his best plan would be to attack his arthritis vigorously at once. For this purpose there is nothing more certain than the method recommended by Dr. P. W. Latham and practised by myself with gratifying success (see THE LANCET, April 6th, 1901, and Sept. 7th, 14th, and 28th, 1907).

I am, Sir, yours faithfully,

Bournemouth, Nov. 10th, 1910. W. J. MIDELTON.

PURE TOBACCO.

To the Editor of THE LANCET.

SIR,—Your readers might wisely try the following. Get leave from the Excise authorities to buy a pound or more of real good leaf tobacco from any good manufacturer, and then find a good A.B. in the Royal Navy and get him to do the "baccy" up in "perique" fashion, as used in the Navy. I have used it for years, and you certainly get the real tobacco flavour. I sometimes think a little additional flavour would be advantageous—I am now smoking some Havanna leaf done up in perique fashion—and certainly most of the "mixtures" now sold are atrociously adulterated, though they have the "flavour" and so are pleasant smoking.

I am, Sir, yours faithfully,

Nov. 15th, 1910. HOLLINS CROSS.

THE BLIND SOCIAL AID SOCIETY.

To the Editor of THE LANCET.

SIR,—The Blind Social Aid Society hopes that you will be good enough to assist them in their endeavours for the welfare of the blind by inserting this letter in your columns. We wish to bring to public notice the excellent qualifications and abilities of the properly educated blind in their various professions and trades, musicians, tuners, brush, basket, mat makers, &c., to the end that they may have the assistance of the many persons who would gladly give them employment if they but knew of them. We propose to give a series of local concerts round London, by which we hope successfully to advertise the blind working in the various districts, and shall be pleased to hear from Church

secretaries and others having halls seating 200 or more who would like us to come and give them a first-rate concert. By the coöperation of the Churches and ourselves we hope to secure good audiences and also more employment for those who, though so heavily handicapped, are thoroughly well qualified and anxious to become self supporting.

Replies will be gladly received by the honorary secretary.

5, Minories, London, E.C. ALFRED CARR.

SUPERSTITIOUS REMEDIES.

To the Editor of THE LANCET.

SIR,—In the *Standard* of yesterday (Nov. 11th) there is a paragraph quoted from THE LANCET about a superstitious cure for shingles, &c. It struck me as a strange coincidence that the Welsh name for shingles is "eryrod" = eagles. I wonder how that came about?

Trusting this may be of interest to your readers,

I am, Sir, yours faithfully,

Aberystwyth, Nov. 12th, 1910. (Miss) SUSAN WILLIAMS.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for 1910:—

Nov. 11th-19th (London).—Stanley Exhibition.

In 1911:—

Feb. 20th-25th (Cairo).—Fifth International Congress for the Blind.

March 2nd-6th (Berlin).—Thirty-second Balneological Congress.

April 4th-7th (London).—Fourth Annual Nursing and Midwifery Conference and Exhibition.

May-October (Dresden).—International Hygiene Exhibition.

May-October (London, Crystal Palace).—Festival of Empire Imperial Exhibition. (Profits to King Edward VII. Hospital Fund.)

May-October(?) (London, Shepherd's Bush).—Coronation Exhibition.

June and July (Romford).—Town Planning and Modern House and Cottage Exhibition.

July (Birmingham).—British Medical Association.

August or September (Berlin).—Third International Laryngo-Rhinological Congress.

September (Brussels).—Exhibition of Fractures.

Sept. 11th-16th (The Hague).—Thirteenth International Congress on Alcoholism.

,, 18th-23rd (Sydney).—Australasian Medical Congress.

,, 24th-30th (Rome).—International Congress on Tuberculosis.

,, 25th-29th (Rome) Seventh International Congress of Dermatology and Syphilology.

October (Cologne).—International Congress of Criminal Anthropology.

In 1912:—

July (?) (Cologne).—International Congress of Nurses.

September (Prague).—International Congress of Radiology and Medical Electrology.

September (Berlin).—Sixth International Congress of Obstetrics and Gynæcology.

In 1913:—

(London).—Seventeenth International Congress of Medicine.

In 1915:—

(London).—International Prison Congress.

(London),—Imperial Exhibition (?)

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 15, Cavendish-square, W. (temporary address during building of new house).

TUESDAY.

MEDICAL SECTION (Hon. Secretaries—A. F. Voelcker, Sir John F. H. Broadbent, Bart.): at 5.30 P.M.

Paper:

Dr. F. Craven Moore and Dr. L. Kilroe: The Use of Belladonna in Dyspepsia.

FRIDAY.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—J. P. Lockhart Mummery, T. R. Whipham, G. S. Haynes) at 11, Chandos-street, W.: at 4.30 P.M.

Cases and Specimens.

EPIDEMIOLOGICAL SECTION (Hon. Secretaries—W. H. Hamer, G. S. Buchanan): at 8.30 P.M.

Paper:

Dr. J. Edward Squire, C.B.: Some Points in Relation to Tuberculosis and its Prevention.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—8 P.M., Mr. C. R. Darling: Industrial Pyrometry. (Lecture I.)

WEDNESDAY.—8 P.M., Sir Henry H. Cunynghame: Methods of Detecting Fire Damp in Mines.

HUNTERIAN SOCIETY, London Institution, Finsbury-circus, E.C.

WEDNESDAY.—8.30 P.M., Mr. J. E. R. McDonagh: Treatment of Syphilis by "606," with demonstration of illustrative cases.—Mr. R. Warren: Punctured Wounds of the Heart.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. H. G. Adamson: Clinique (Skin). 5.15 P.M., Lecture:—Mr. T. C. English: Diagnosis and Treatment of Chronic Intestinal Obstruction.

TUESDAY.—4 P.M., Dr. C. T. Williams: Clinique (Medical). 5.15 P.M., Lecture:—Dr. J. L. Bunch: Some Methods of Treating Skin Diseases.

WEDNESDAY.—4 P.M, Mr. T. P. Legg: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. A. Latham: The Administration and Value of Tuberculin in Various Forms of Tuberculosis.

THURSDAY.—4 P.M., Dr. E. Cautley: Clinique (Medical). 5.15 P.M., Lecture:—Dr. A. Latham: The Administration and Value of Tuberculin in Various Forms of Tuberculosis.

FRIDAY.—4 P.M., Mr. W. Stuart-Low: Clinique (Ear, Nose, and Throat).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Mr. Edwards: Urinary Surgery.

TUESDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. 11.30 A.M.: Mr. Etherington-Smith: Demonstration of Minor Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Low: The Prevention of Tropical Diseases.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Dr. Beddard: Practical Medicine.

THURSDAY.—10 A.M., Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye. 5 P.M., Lecture:—Dr. R. H. Cole: The Modern Treatment of the Insane.

FRIDAY.—10 A.M., Dr. Robinson: Gynæcological Operations. Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Mr. Dunn: Diseases of the Skin. 5 P.M., Lecture:—Dr. Abraham: Cases of Skin Disease.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics. X Rays. Operations.

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Mr. Turner: Surgery. 3.15 P.M., Sir Dyce Duckworth: Medicine. 4 P.M., Mr. R. Lake: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. R. Carling: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. Carling: Operative Treatment of Fractures.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture:—Mr. McGavin: Operative Dangers in General Practice.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. E. Gillespie), 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations. Clinics:—Surgical (Mr. H. Evans); Gynæcological (Dr. A. E. Giles). 3.30 P.M., Medical In-patient: (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks). 3 P.M., X Rays (Dr. A. H. Pirie). 4.30 P.M., Lecture-Demonstration:—Dr. A. H. Pirie: The Value of X Rays in the Early Diagnosis of Diseases of the Chest.

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. Carson). 3 P.M., Medical In-patient (Dr. G. P. Chappel). 4.30 P.M., Demonstration:—Dr. G. P. Chappel: Selected Medical Cases.

FRIDAY.—2.30 P.M., Operations. Clinics:—Medical Out-patient (Dr. A. G. Auld); Surgical (Mr. H. Evans); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

HOSPITAL FOR SICK CHILDREN (UNIVERSITY OF LONDON), Great Ormond-street, W.C.

MONDAY.—5.15 P.M., Demonstration:—Dr. J. H. Thursfield: Food and Food Diseases—Rickets. (Special Post-Graduate Course.)

TUESDAY.—5.15 P.M., Demonstration:—Mr. H. A. T. Fairbank: Deformities—Deformities associated with Rickets, Dislocation of Patella. (Special Post-Graduate Course.)

WEDNESDAY.—5.15 P.M., Demonstration:—Dr. J. H. Thursfield: Food and Food Diseases—Infantile Scurvy. (Special Post-Graduate Course)
THURSDAY.—4 P.M., Lecture:—Mr. Waugh: Swellings in the Inguinal and Scrotal Regions.
FRIDAY.—5.15 P.M., Demonstration: Mr. H. A. T. Fairbank: Deformities—Scoliosis, Lordosis, Kyphosis, Neurotic Spine. (Special Post-Graduate Course.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY.—4 P.M., Lecture:—Dr. Bosanquet: Theory and Practice in the Treatment of Pulmonary Tuberculosis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.
TUESDAY.—3.30 P.M., Clinical Lecture:—Dr. A. Turner: Peripheral Neuritis.
FRIDAY.—3.30 P.M., Clinical Lecture:—Dr. G. Stewart: Syphilitic Compression Paraplegia.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road, W.C.
TUESDAY.—3.45 P.M., Lecture:—Dr. Kingsford: Anæsthetics.
FRIDAY.—3.45 P.M., Mr. W. Wallis: Mouth and Teeth.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.
THURSDAY.—6 P.M., Chesterfield Lecture:—Dr. M. Dockrell: Tuberculosis of the Skin—I., Lupus Vulgaris; II., Tuberculosis Verrucosa Cutis; III., Scrofuloderma.

ANCOATS HOSPITAL, Manchester.
THURSDAY.—4.15 P.M., Mr. G. Wright: Head Injuries. (Post-Graduate Clinic.)

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (21st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.).

TUESDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.), Royal National Orthopædic (9.30 A.M. and 4 P.M.).

WEDNESDAY (23rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (24th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal National Orthopædic (9 A.M. and 3.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY (25th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Royal National Orthopædic (3.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (26th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic (2 P.M.) Hospitals operations are performed daily.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 16th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 10	30·14	S.W.	...	61	51	34	34	35	Hazy
,, 11	29 43	WNW	0·06	61	46	35	41	43	Fine
,, 12	30 02	W.	0·03	66	46	33	34	34	Cloudy
,, 13	29 63	S.W.	0·01	55	50	34	41	43	Overcast
,, 14	29·01	S.W.	0·34	74	52	41	46	46	Cloudy
,, 15	29 10	S.	0·01	59	50	44	44	45	Cloudy
,, 16	29·64	N.W.	...	58	42	35	34	35	Fine

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